



# Sloan Career Cornerstone Center

## Profiles of Chemical Engineers



**Sandra McCain**

**Ink Development Engineer  
Lexmark International  
Lexington, KY**

### **Education:**

B.S. - Chemical Engineering, University of Kentucky

### **Job Description:**

Ink development engineer in the ink jet engineering group

### **Advice to Students:**

"Don't give up. There were so many times I wanted to give up because it does get difficult. But if you stick with it, it will pay off in the end, it really will."

### **Video Transcript:**

"Get here about eight o'clock, hopefully, and start formulating inks. That's what I work on, ink jetting ink and we're working with new materials every day, different formulations, testing our new products, trying them out. I also have to attend a lot of meetings, keep in touch with what the other groups are doing in my area because we all have to interact and make sure we're all on the same wavelength as far as developing new products."

### **Interview:**

McCain: My name's Sandra McCain and I work at Lexmark International in research and development. I work in the ink jet engineering group, and I've been here for four years now.

### **Q: What made you decide to become a chemical engineer?**

McCain: I can't really pinpoint one certain thing, but in high school I really enjoyed mathematics and chemistry class. My parents kind of pushed me into the direction of engineering, where they thought I would utilize my mathematics and chemistry more. So I signed up for it at the University of Kentucky and I stuck with it. I didn't really know what I was getting into, but I stuck with it and I'm glad I did.

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### **Q: How was your college experience?**

McCain: I think college was wonderful. I thought the major was a bit difficult, and a lot difficult at times. It was very challenging, but it also taught me a lot of things. It taught me how to persevere, work well under pressure, interact well with others, and work in groups. I'm really glad that I stuck with it. Sometimes I did miss out on a few activities-because engineering is a lot more demanding than some other majors-but it's well worth it. You still have time to do some things other than math, chemistry, and all the computer activities that you need to complete.

### **Q: Do you think your education prepared you for the work place?**

McCain: Definitely. I think I had a well-rounded education. A lot of the things I learned I do use here as well. But, here I also get the opportunity to take more technical classes and travel to different states to take courses and further my education as well. So it's an ongoing process.

### **Q: How did you find this job?**

McCain: I was contacted through my career center at the University of Kentucky. They called me in for an interview and I responded. And I had other interviews, but I really liked Lexmark. I liked the people I interviewed with. They gave me a tour of the plant and I thought it was really nice. So I stayed here in Lexington.

### **Q: Was it easy to find a job?**

McCain: I think with an engineering background I probably had a lot easier time than other people, because I don't think engineering is saturated. There are always people out there looking for engineers. I think an engineering degree shows you are versatile-that you probably are able to handle any kind of challenge that a company is going to offer you. And, I think that a co-op education is essential to finding a job, because that really put my foot in the door, just having that education behind me.

### **Q: What was your co-op experience like?**

McCain: I worked for a chemical-producing company in Cincinnati. It makes oleic chemicals and fatty acids. I co-oped there for three semesters, working in a quality control laboratory. They would bring in samples every day and I would learn the basic tests to perform on these samples. I learned a lot about materials, testing procedures, and testing equipment while I was there. It was really helpful. They moved me into an engineering group later on, and I got to see the engineering side of problem solving-when things go wrong in the plant, what do you do to fix it, what method do you use, how do you find the resources to fix the problem? That was really interesting and really helpful. They gave me a few mini-projects to work on. I enjoyed that, since I had more responsibility there. In my final phase of co-oping, they sent me to an ozone technology group where I got to see the marketing side of the company. I participated in getting bids on jobs. We installed ozonators and saw more of the monetary side of things-how much do these cost, how are we going to install them? It was more of the business side than the technical side. Co-oping let me see all different facets of working in the business world. From technical to business to financial-everything. It was really a great experience.

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**Q: Did your co-op experience help you in the transition from college to work?**

McCain: Definitely, definitely, definitely. I learned so much about interactions in the work place. Once I came to work for real, it wasn't such a shock and I was used to it.

**Q: What is your typical day like?**

McCain: I get here about eight o'clock and start formulating inks. That's what I work on-ink jetting ink. We're working with new materials every day-different formulations, testing our new products, trying them out. Is this going to work? How does it look here? That's a major portion of my day. I also have to attend a lot of meetings and keep in touch with what the other groups are doing in my area, because we all have to interact and make sure we're all on the same wavelength as far as developing new products.

**Q: Where does on-going professional development fit into your plans?**

McCain: I'm not going to go back to the university for education. I feel like I'm learning more here because they bring in teachers and professors and they offer a lot of courses here. I also get the opportunity to travel and attend a lot of courses. It's more related to what I do here rather than general chemistry. I'm learning more-focusing on what I work on, such as ink development and ink jet printing. I probably will just continue to take advantage of what I'm offered here at Lexmark.

**Q: Who are some of the people you interact with in your job?**

McCain: I interact with other engineers in different backgrounds, mechanical and electrical engineers mostly. I work with the technicians a lot, the ones that make all the inks. They do all the hard, dirty work, and I interact with them a lot. I also interact with marketing, though not as often. When decisions have to be made about a new product, we become involved with the marketing side.

**Q: Where do you see your career going?**

McCain: Hopefully, up the technical ladder. I'd rather stay on the technical side of things. I don't really want to become involved in business, finance, or management. Hopefully, I'll stay here in research and development.

**Q: What aspect of your job do you like the most?**

McCain: I like working in research and development. I like seeing ideas become products. I like the people I work with a lot. I think I'm fortunate to work in a big department of close-knit people. I also like working in a large corporation where there are so many opportunities. There are so many things to take advantage of in a large corporation.

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**Q: What would you say was the worst part of your job?**

McCain: The worst part is having to adhere to a schedule when we're developing a new product. It puts the pressure and stress on, because you want to make sure you make the most robust product but in the shortest amount of time possible. It puts a lot of pressure on you, but it all works out in the end.

**Q: How would you define a successful engineer?**

McCain: A successful engineer would have to be someone who is well rounded. They have to have a good educational background and know how to deal with people and deal with problems in a diplomatic way. They work well under pressure and they work well with other groups that aren't in their specialty. If they're happy with what they're doing, they're going to be successful.

**Q: Why do you think you were hired by Lexmark?**

McCain: I think the biggest reason I was hired here was because of my co-op education. I was interviewed here and everything that they asked me was about my work experience. I was really fortunate to have a lot to talk about. I had a great experience co-oping. Also, I was involved with activities other than engineering, which they might have seen as the characteristics of a well-rounded person.

**Q: How did you find this job?**

McCain: I looked for jobs on my own, as well as getting involved with the career placement office. I sent out resumes and cover letters and I contacted companies myself, but at the same time I had the career office working for me. I tried to cover as many companies as possible.

**Q: What advice would you offer to someone who's interested in chemical engineering?**

McCain: Don't give up. There were so many times I wanted to give up because it does get difficult. But if you stick with it, it will pay off in the end, it really will. It opens a lot of doors of opportunity, just having that engineering bachelor's degree. You can go further from there, but it's good to have that degree. Other than that, I would just reiterate: Don't give up, it really is worth it to stay with engineering. I think it is a very versatile degree. It allows you to do many different things. You have a choice when you have an engineering degree. Just having an engineering degree means that you're someone who is willing to accept a challenge and go out there and face things head on. You've shown that by getting through college, you're ready to face anything in the real world. It makes you a stronger person.

**Q: What are some of the other skills that you find helpful?**

McCain: I think you have to work well with other people. You have to interact with all kinds of people. You have to be able to communicate effectively. You have to communicate your ideas, and you have to be able to present them. You have to be able to access things-people, libraries, any kind of databases to get the information you need to do your job.

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**Q: Do you have a mentor?**

McCain: I've been here four years and have already gone through two different parts of the company. I worked with laser printers, now I work with ink jet printers, so I've already been moved around a lot. I haven't had one specific person who has been there to guide me along. However, I've been in ink jet a little longer than I've been in laser, and there's a senior and junior engineer who I've looked to for guidance with my decision making. They have helped me out and pointed me in the right direction. It's good to have those engineers willing to help you out and show you the way.

**Q: Do you belong to any professional associations?**

McCain: Yes, AIChE.

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