



Sloan Career Cornerstone Center

Profiles of Chemical Engineers



Dawn Childs

**Process Engineer
Shell Chemical Company
Deer Park, TX**

Education:

B.S. - Chemical Engineering, University of Texas

Job Description:

Process Engineer

Advice to Students:

"Until you get practical work experience it's very difficult to even have an idea of what you would do as an engineer or even know what kind of questions to ask. So an internship really gives you a good place to start."

Video Transcript 1:

"As a process engineer in this type of a role, one of the main responsibilities of your job is to provide daily support to your unit. And what that would mean is trouble shooting problems that go wrong in the plant or trying to find ways to run your plant better. You could try to improve the safety of your plant, or trying to meet increasingly strict environmental regulations, improve the profitability of your unit which could mean using less energy, so less steam, less raw materials, get more product for the same amount, de-bottleneck units in order to make more product. There are things that are called process hazard reviews where you go through each line in each step of the process and you say what could go wrong if you increased flow or decreased flow and are there safeguards in the system that are adequate to help prevent a safety problem."

Video Transcript 2:

"I personally feel like, in my assignment, that I am fairly compensated and I'm happy with how much I make. I haven't found very many people that have had issues with how much they're making."

Video Transcript 3:

"One of the first things that it means to be successful is that you feel really happy with your job and you have, you feel like you're living the life that you want to live and you're reaching your goals. And, I think, I finally started feeling that after I'd been at work for about a year, once I started feeling very comfortable with my job and started feeling like I can provide the company

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with something. And when people started coming to me with questions and problems and I started becoming the, the technical resource to come to with issues."

Interview:

Childs: As a process engineer, one of the main responsibilities of your job is to provide daily support to your unit. What that means is troubleshooting problems that go wrong in the plant or trying to find ways to run your plant better. That could also mean doing lots of projects. And projects could be safety oriented: improve the safety of your plant; meet increasingly strict environmental regulations; improve the profitability of your unit, which could mean using less energy, steam, and raw materials, or getting more product for the same amount; or de-bottleneck units in order to make more product.

Q: What are some of the things that you do as a chemical engineer with Shell?

Childs: It really depends on the project. In a safety project, they could come up as someone has a concern about how they're doing their job and you have to implement something that will make it safer. Or there are things that are called process hazard reviews, where you go through each line in each step of the process and say what could go wrong if you increased flow or decreased flow and are there safeguards in the system that are adequate to help prevent a safety problem. For an environmental problem, it might be something like the government has a new regulation on how much of a certain type of component you can release, and you have to find ways to meet that criteria. For profitability projects, it could be things like we want to save a million dollars on our raw material feed and it's the dollar savings you see.

Q: What does success mean to you?

Childs: I think one of the first things that it means is that you feel really happy with your job and you're reaching your goals. After I'd been at work for about a year, I started feeling very comfortable with my job. When people came to me with questions and problems and I started becoming the technical resource to come to with issues, that was when I started feeling like I was making a difference.

Q: How does money fit into job happiness and success?

Childs: I am fairly compensated and I'm happy with how much I make. You really need to worry more about what your job assignments are and what your career goals are.

Q: What advice would you offer someone interested in becoming a chemical engineer?

Childs: Undergraduate students should find out what's right for them, and they should try to get practical work experience as soon as possible. Find out what people like and don't like about their jobs. Work in the job assignments yourself and find out what you like.

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Q: How did your undergraduate education prepare you for this job?

Childs: An engineering education teaches you a way of thinking, it teaches you a way to look at problems, analyze them carefully, test your assumptions, and work at problems in a very exact and thorough manner to come up with the best answer. If you're very active in extracurricular activities, you can get a lot of important skills from that: scheduling meetings, working with other companies, working with other people, and balancing different types of roles.

Q: Did you do any co-op or internship programs as an undergraduate?

Childs: Where I went to school, they offered several different types of programs for working while you were in school. I chose to work through the intern program. Companies would come to campus, interview you, and hire you for the summer. I worked for two different companies for the summer and had two totally different types of roles that are totally different from what I'm doing now. It gave me a good chance to see what engineering was really like, to see if I liked it, and try different types of engineering. I worked in research, in a lab, and designing equipment in a lab. And, I've worked for another oil company in offshore drilling production.

Q: Did your internship experience help you decide where you wanted to work?

Childs: Until you get practical work experience it's very difficult to even have an idea of what you would do as an engineer or even know what kind of questions to ask. So it really gives you a good place to start. You get to know what kinds of things you like. If you want to spend a lot of time on the computer, if you want to spend a lot of time doing design work. If you're really more people oriented, you can learn a lot about that and about yourself when you're actually on the job and using your skills.

Q: What do you like about your current job?

Childs: I like to work with people a lot and my job now lets me do that. I like to work on a lot of different things, and it makes the day go very quickly. I have a lot of things to work on and a lot of things to keep me interested. It's not the same thing every day, the same environment every day. It changes a lot.

Q: What future educational opportunities exist for a chemical engineering graduate?

Childs: I think an undergraduate degree in chemical engineering really opens you up to a lot of different graduate degrees. I know people who have gone on to law school in patent law. I know people who have gone to medical school. I know people who are getting master's degrees in biomedical engineering and people who are getting Ph.D.s in chemical engineering. All of those are perfectly good career paths for my chemical engineering background-it prepares you for a lot. I personally plan on getting my P.E. To do that, first you have to take the E.I.T. exam, which is the Engineer in Training exam. I would recommend taking that while you're still an undergraduate. Then after that, you have to work for a certain number of years, and then you take a P.E. exam.

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Q: How important are communication skills for what you do?

Childs: Communications skills are critical to be an effective engineer. I can't stress that enough. You have to be able to write well, and you have to be able to write clearly. You give a whole lot of presentations as an engineer. You have to give technical presentations, or sometimes you have to jump up in the middle of the meeting and start discussing a topic. I took a technical communications class in my undergraduate education that helped prepare me. Work experience helped me, too, because you have to do that in your job, so you're forced to learn it. Extracurricular activities are another good way to help develop communications skills because you have to plan meetings, run meetings, and schedule events.

Q: What specific activities were you involved in?

Childs: I was a student recruiter and I was an officer in American Institute of Chemical Engineers. I was an officer in the Society of Women Engineers. I was in several honor societies on campus and I volunteered for a lot of things. I was a hospital volunteer for the Children's Hospital and I worked at the food bank and did a lot of things as an undergraduate. And, I really enjoyed that and would definitely recommend that.

Q: What is it like being a female chemical engineer?

Childs: I think you face unique challenges in engineering and I think you have to find it in yourself to have courage and dedication and motivation to stick with something that you really want to do. And as women have become more and more accepted and have moved more towards technical fields like engineering, it has become much easier for people like me to work as an engineer because they've sort of already paved the path.

Q: And is there a least favorite part of your work day or of your job?

Childs: One of the things that makes this job difficult is when you have to make decisions quickly. It can be stressful at times, especially when there's a lot at stake. There are times when there are major problems. During those times you may have to work long hours; that can also be hard.

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