



# Sloan Career Cornerstone Center

## Profiles of Mechanical Engineers



**Joseph Magee**

**Training Manager  
Drilling Operations  
Shell Western Exploration & Production  
Houston, TX**

### **Education:**

MS, Electrical Engineering, University of Texas  
BS, Electrical Engineering, University of Texas

### **Job Description:**

Training Manager, developing and delivering training programs.

### **Advice to Students:**

"In the past, there were groups of specialists that were very narrowly focused, and they had a supervisor, and there were several supervisors at that level, and these specialty groups were organized into a somewhat more general group, and so on. Today, though, there tends to be a supervisor that has many different kinds of people doing many different kinds of work, in the same group."

### **Comments:**

Joe has seen many changes in a 30-year career -- today's engineer needs to be flexible and able to communicate effectively. His company is like many others -- fewer levels of management, more responsibility at the team level, and a need for engineers who do different kinds of work. Joe's career is an example of on-the-job continuing education, experience and interdisciplinary flexibility. Until ASME interviewed him for this CD-ROM, his current supervisor boss was unaware that he his formal education was in electrical engineering.

### **Video Transcript 1:**

"We're organized differently, today, than we used to be. We have fewer levels of management. Which means that there are more different kinds of work going on in each group. Today, though, there tends to be a supervisor that has many different kinds of people doing many different kinds of work, in the same group. But the reality of that is that each person has more different kinds of work going on around him."

### **Video Transcript 2:**

"I'm out of town, visiting the people in the divisions, pretty frequently. I might be out to a drilling rig, for a day or two, from time to time. So, lots of variation. No one day is ever the same as another."

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## Interview:

**Q: You've had a thirty-one-year stint? How did you look at our career, in terms of job security, back then?**

Magee: I really hadn't given it a lot of thought. The paradigm, in those days, was that you went to work for a big company, and stayed there all of your career, unless something happened to change your mind. It was a totally different paradigm from the one of today, where people expect to change jobs, several times, in their career. So, without giving it a lot of thought, my basic plan was to stay for my whole career, unless something unexpected happened.

**Q: How old are you, then?**

Magee: I'm fifty-three.

**Q: And how many more working years do you anticipate?**

Magee: Well, I would really like to stay seven more years. I would be sixty then. That would be full retirement. And I would be very happy if I can have seven more years of interesting, challenging work, so that it doesn't become a process of hanging on to the end. That's really what I'd like to do.

**Q: Are you fairly confident that you will have those seven years, here at Shell?**

Magee: I'm pretty confident. As much as anyone can be, these days. The company is doing well, right now. I'm in Drilling Operations; it's my area. And we have a lot of drilling activity, and the forecast is for there to continue to be a lot of drilling activity. So, I think that there should be a place for me that I can contribute, for six or seven more years. Yes.

**Q: Joe, are you at all involved in the selection of new engineers, be they mechanical, or would be earth sciences, or electrical? Any kind of engineers that Shell is looking for, do you help select new candidates?**

Magee: No, I am not involved in that process.

**Q: Let me ask you this, though. Even though you are not personally involved, if you were speaking with young people, today, who are giving mechanical engineering thought, what do you think the three most important things that an employer -- be it a large company or a small firm -- are looking for in today's world?**

Magee: If I had to name three things that we would be looking for in new people, I would say one is -- well, the person -- for an engineer, a person certainly has to have a solid technical background, understanding of engineering principles, and so on. I think a person, today, has to have a degree of nimbleness or mobility or -- ability -- flexibility, maybe, is the word, to change from one assignment to another assignment, easily. I think there is more, today, a case of people doing different types of work, as opposed to settling into a particular job, the

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way we used to. More so. So, you need someone with some flexibility, and who could fit in, in a number of different places. And the third thing, I would say, and that -- I guess it's trite, because you always hear it, but it's really true -- the business of communicating. Being able to work with other people, constructively, and be able to fit in lots of different situations, and fit in with the people. In my observation, and I think most people would back me up on this -- the people who have done well as opposed to the people who have not done so well, career-wise -- it's been much more a matter of the person's communication skills, and how they get along with other people, and how well they work with other people, as opposed to their technical competence. I think almost all the engineers in Shell have all the technical competence they need to do their jobs, because the company's pretty choosy about who they hire out of college. So, I would say, almost everyone that comes has the technical capability they need, and then the separating factors turn out to be other things, about working with other people.

**Q: Great. You spoke about the company being relatively choosy. If you remember, now, that your audience are young students who are not yet making the gap to professionalism, I'd like you to comment on this aspect of work. We all know that there's a big difference between study and practical experience. One of the areas that young people are very concerned with is "How does a company make its wishes known to individual employees?" So, given your world here at Shell, how are you informed, on a day-to-day, week-to-week, month-to-month basis, of what the company wants out of you, with respect to job management?**

Magee: I think the expectations of me are -- as they've always been -- they've been pretty much determined by the immediate situation that I'm in. The supervisor that I have. The work that the others around me are doing. Particularly, earlier in my career -- and I think this is true of most people in the technical staff -- early in my career, I usually had several other engineers around me, who were doing the same job or similar jobs, and there were people who had been around a few longer than myself, and I could always look at others who were a little bit senior to me, in terms of them kind of setting a style or example, whatever. And I would pattern myself somewhat accordingly, based on what seemed to work and what seemed to not work. Recognizing that I had to put my own style, on what I had to do. But, basically, my immediate supervisor -- and in the planning process, each year; looking -- setting goals for the following year -- most of the expectations were pretty well laid out, in those kinds of sessions. When I first came to work for the company, I really didn't know what the expectation was. I had, really, two summers' experience with Shell; so that gave me a little bit of a head start in knowing what the company did and what jobs were like. But I think mostly, for the new employee, straight out of college, it's a learning process to find out what the company expects of you.

**Q: During the thirty years, or so, that you've worked here, have there been times when you've either been tempted to leave, or offered other situations by competing companies?**

Magee: Yes. As a matter of fact. That happened two times. One time, I was tempted to leave, and I went as far as to accept a job with another company. And when it got right down to quitting my job with Shell, I changed my mind and decided I didn't want to leave, after all. So, I called the other company back, and told them that I did not want the job, after all. That was about -- I had about nine years with the company. At a later time, I went through the same process, largely over location. I was living in a city that my family and I didn't want to

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continue to live in. And prospects of being transferred were not very good. And so, that time, I interviewed with another company, and, in fact, resigned from Shell. And, after six months, came back with Shell, and resumed my career, here.

And after I resigned, and I was working with the smaller company, I became aware of a lot of things that were right about Shell. I had been focusing on some things that were wrong in my immediate job. And I suddenly realized there were a lot of things about the company that were right, and that I had here. The quality of people I had to work around. The technical support. The technical resources. The fact that Shell really tried to run a good operation. The operations we did in the field, we really tried to do things right. I learned, when those things were no longer available to me, that they were very important. And, so, I went back to Shell, asked them if I could go back to work for them. And we were able to work that out. And, so, I - - after about a total of six months -- came back to work for the company, and with much more positive feelings than I had before. And, which have basically stayed with me. They've made me realize that Shell is a good company. It made me proud to tell people that I work for Shell. And although it was a very expensive and trying year for my family, when it was all over, I think we were all better off for it. And I've never regretted, a day, the fact that I came back.

**Q: Does a large company like Shell -- I mean, I can't really ask you to compare it with other big corporations -- but within your job world here, when you are not feeling good about the situation internally, what is the format for having those feelings dealt with? How does the company deal with them?**

Magee: Well, I don't know that there's any one answer to that. Everyone is told that if you're unhappy with your job situation, if it's something that your immediate supervisor can do something about, that's the person to talk to. Some people are pretty open and willing to do that; other people are quite reluctant to do that. It depends on the personal relationship between the individual and their supervisor. I happen to have a supervisor, right now, that we're very open, and I would not be reluctant at all. I have had supervisors, over the years, that I did not feel comfortable to do that with, though. So, sometimes, the method for resolving it gets done through informal contact with people. Talking with people. Finding out other people have the same problem; it's not just you. But if it really is a fundamental thing with the company, the first stop is your immediate supervisor. And if you don't get it resolved, at that point, there are other avenues you can go to. I've never had to do that, though; so, I don't really know.

**Q: Tell me, what is your degreed area?**

Magee: I have a bachelor's degree in electrical engineering, from the University of Texas, which I got in 1964. I have a master's degree in electrical engineering, also from the University of Texas. I got that in 1965.

**Q: And, yet, I hear that a lot of the things that you do involve work as a mechanical engineer.**

Magee: That's very true. That's very true. And when I first went to work for the company, I had a little bit of anxiety about that, that I was somehow wasting some of the things I learned in electrical engineering, and so on. And, over the years, I've decided that that really was a kind of an unfounded worry. Because, really, the engineering method, engineering thinking,

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quantitative problem-solving, and so on, is the same. In different engineering specialties. Shell has always had people with different degree backgrounds doing similar jobs, or the same job. In the job I was in, there were others who had mechanical engineering degrees; others with civil engineering degrees. Others with electrical engineering. So, although it was a real worry for me, right at first, it did not turn out to be a problem. One thing that did help me was, some of the electives that I took outside my degree area have turned out to be some of the most valuable courses I took in college. I took courses in fluid mechanics. And we had a course in machine design. We had a course in strength of materials. A course in engineering economy. Present-value calculations. Some of those were the most valuable single courses I took, looking back on it.

**Q: We've been speaking to engineers, all over the country, of various kinds, involving mechanical, electrical, chemical, from the geo sciences. And it seems to me, as a lay person, that, more and more, I'm finding that engineering is interfaced much more completely than it was, say, thirty years ago. With respect to a growth in technology. Computer. Communication. Sophistication of new techniques. Has this had anything to do with why engineers seem to overlap more than they used to? And if it doesn't, what do you think it's creating, then?**

Magee: I think it does. I think one thing that's creating that, too, is the fact that companies -- Shell, and other companies, as well -- are organized differently, today, than we used to be. We have fewer levels of management. Which means that there are more different kinds of work going on, in each group. In the past, there were groups of specialists that were very narrowly focused, and they had a supervisor, and there were several supervisors at that level, and these specialty groups were organized into a somewhat more general group, and so on. Today, though, there tends to be a supervisor that has many different kinds of people doing many different kinds of work, in the same group. And "team" is kind of the buzz word of the day, and everybody's in teams. But the reality of that is that each person has more different kinds of work going on, around him. Each engineer does. And so, yes, there is more overlap. I think that's part of the reason.

**Q: Do you think that that overlap is at all created by the fact that jobs, now, are so much more global than they were thirty years ago? Or global-oriented.**

Magee: I'm not sure what you mean by "global-oriented" job. But, from my own standpoint, looking at Shell -- or looking at the jobs I see -- I think the difference in climate in terms of the engineering overlapping is a result of what I mentioned before, about having more kinds of work occurring in each group.

**Q: Tell me something. The typical day for you. What is it like? Run me through a typical day. And with regard, in particular, to the people that you work with -- not so much as individuals, but other professionals and areas of different job categories that you will bump into, in the course of your business day.**

Magee: OK. I'm in a somewhat unique job, to describe a typical day. And I work in training. And, so, when I have classes going on, my typical job day is standing up in front of a group of five to twenty-five people, all day long, and presenting course material. The majority of my time, I'm not actually standing in front of class; I'm involved in course preparation. What would

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happen in a typical day -- and, again, there's no such thing as a typical day, I guess -- but typical things that happen -- typical things that happen are -- I'll spend part of the day working on my computer. Maybe looking at some technical programs, and deciding how to use those in my courses. I may spend part of my day talking to people who are out in the working divisions, either in Houston or in New Orleans, about some of their current procedures, or some of their current problems. I might be involved in helping them, from a technical-support basis, with some of their work. I may have salesmen, vendors' representatives, come to my office and bring me materials that I'm going to use in classes. I may spend part of the day talking with other instructors, working with other instructors on team courses that we're putting together. I may spend some of the time in my own study, on my computer. I'm always working on my computer skills. Needing to. We have meetings of our own training team. Periodically. And their follow-up action items that come out of those meetings. I'm out of town, visiting the people in the divisions, pretty frequently. I might be out to a drilling rig, for a day or two, from time to time. So, lots of variation. No one day is ever the same as another.

**Q: Can you tell me a little bit about a couple of the things that you like the most about your job?**

Magee: One thing, I like teaching. I like being a teacher. That's something I always wanted to do, and I asked for this job. And it took a little while before I was able to -- organizationally -- do the things that had to happen to get into the job. But that's part of it. I like teaching. Another thing I like about it is that when I'm not actually teaching classes, my time is pretty much discretionary. As long as I get my classes ready, and get the work done for others that needs to be done, my time management is pretty much my own. So, I can come and go as I please. I don't face a lot of short operating deadlines, frequently. Like you do in a lot of jobs. And I like the freedom of that. And I think, being in the latter part of my career, one of the things that it's natural to want to do, when you're further along in your career -- or in your life, really -- is to pass along things you've learned to others. And I'm in a job that lets me do that, in kind of an official way. So, that's very satisfying.

**Q: You say that none of your children became engineers. As they were growing up, were you able or interested in sharing aspects of your work with your kids?**

Magee: Yes, I did. And, fortunately, at the time, they were maybe ten, twelve, fourteen years old, an age to be interested and learn about it. My job, at that time, with Shell, was as a drilling superintendent, in the Offshore Division. So, I had rigs out in the Gulf of Mexico that I was looking after, and I had the opportunity to take them out -- take them offshore with me. And I had a very exciting, easy-to-show-off kind of job. And they were all very interested in doing that, although none of them had an interest in being engineers, themselves. And I never really, you know, tried to encourage that, one way or the other. I left it totally up to them.

**Q: Had they chosen to go into related or the same field, would you have felt that was fine? Would you have liked that?**

Magee: Yes, I would have. Yeah, it would have been fine. Engineering is a very solid educational background. And I think it fits someone to do lots of jobs.

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**Q: Speaking, again, to young people who are considering careers in mechanical engineering -- you've expressed the fact that you teach and that you like passing things on. If you were addressing them about how to prepare for not only employment, but a situation where they have to win a job in a highly competitive field -- as well as an economy that has been, at least for the last ten years, downsizing -- what hints would you give to them about winning a job, and about how to behave to keep this job?**

Magee: Well, I think that -- for one thing, a person's grade-point average is really the only factual information or performance record, so to speak, that a person has, at the college level. And there are all kinds of stories about people who have good grades, but don't make good employees, and so on. But I think the track record is that people who have good grade-point do make good employees. Because, in order to have a good grade-point average, you've got to be disciplined, and you have to get the job done, and you have to apply yourself. And those are the same things that are called for on the job. I think, beyond that, most of the process of interviewing and being hired -- and I've observed this in my son -- because I've been able to follow his job more than I have my two daughters' -- I think the important thing -- what he has done is -- really is to be yourself. And to just bring your own personality and your own style to your job. And to the relationships and the people around you. Because that's what you really have to do, in the end, anyway. A person can put on a show, for a little while, and that's not the same thing as putting your best foot forward, or putting on your Sunday best when it's called for. But a person ultimately has to be themselves, and that's what they have to bring to the job.

**Q: Looking back over thirty years, could you tell me about one or two moments where you feel that you were able to do what you just said, which is to bring your best to the job? What are you most proud about, project-wise, that you'll look back on, feeling as if you did your best?**

Magee: Probably the jobs that I've felt best about, actually have been in the area of teaching. Because I've felt, there, where I had some influence on a lot of other people. When I first became a technical trainer, about twelve years ago, it was very rewarding to be able to explain to new engineers and new employees about my part of the operation, which was drilling operations. And to make things easier for them to learn than it was for me to learn. I enjoyed that very much. It was rewarding. Probably the best experience I've had with Shell doesn't even relate to engineering. Shell made the decision, back in 1991, to have all of the employees of the Exploration and Production Department -- which was about six thousand people at that time -- to go through a program of seminars, where people learned about seven habits of highly effective people. A commercial program. And that there was a book written on this, and it was kind of in the news for awhile. And I was one of the people who was designated to teach those seminars. And for two years, I did that. Traveled all around the country, and talked to nearly two thousand people, in groups of about twenty-five and thirty at a time, about that program, which there was nothing technical about. It was about work in general, and living in general. And making things go better for oneself, and getting along better with people. Being more successful and effective in your life. And I would say that was the best single assignment that I've had with Shell. And it's strange, when you think about engineering and getting a degree, and what kind of work are you going to do -- I would never have dreamed, in a million years, that I'd have had that assignment. And I may not have had

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it. But the fact is I did. And that was two years out of my life that were two of the very best, job-wise.

**Q: I'd like to ask you, over the last thirty years, how have you kept abreast of changes in your field? And advances.**

Magee: That's been something that, as I said before, has been a real advantage of working for a company like Shell, is that there's access to a lot of technical resources in the company. A lot of staying current in the field, at least in my field in drilling operations, has to do with knowing what new procedures are being tried, what new equipment has been developed, what new products are on the market. For the most part, we receive those products and services from vendors, who are quite anxious for us to try them and use them. So, it hasn't been that much of a problem, as long as I was working directly in operations and in engineering -- to keep up with new stuff -- because it was all pretty much presented to me.

**Q: Joe, you've thirty-one years' experience with Shell, and you're a senior-level engineer. Speak to the question of the influence that you have on making things happen in your organization. Could you do that?**

Magee: Well, I think, being in a teaching job, I think that one of the personal rewards of it is that you do have some influence on it. Because a lot of new people who come through the company learn what they learn, initially, from you. And you're able to put your own stamp on what you say to those people. And, historically, most of the jobs I had, through my career, because I was working in drilling operations, it was always very much a team project, and lots of people involved. And so, frankly, a lot of the time, I didn't feel like I had a lot of influence, myself. There were always people senior to me who were looking at the same things I was looking at, and so there was really some frustration around that, over the first fifteen years, or so, about not being able to have influence.

**Q: But you feel, now, that this whole idea of managing your own career has more meaning to you, now, at this stage of your career?**

Magee: Career self-management -- it very much does. Partly, it's the age that I've reached and experience level that I've reached. And partly it's the fact that the company has actually changed. People really and truly are, today, expected and really are able to choose jobs. We have internal job posting, now, for instance. For the first time. We've had that for about a year or so, now. And although, many years ago, we were always told to be responsible for our own career, we were, in fact, given assignments, and we learned about the next assignments two weeks before it happened. Today, though, people do have much more influence. People are asked, in regard to relocating, if they're willing to relocate. And if they aren't, they don't have to. And, back in the earlier days, it wasn't that way. It was, "Your next pay check is going to be in such-and-such," and so you moved there.

**Q: To what do you attribute this changing attitude of the organization, or operation of the organization?**

Magee: Well, I think all companies are doing this. These days. I think Shell is really and truly expecting people to look after their own career, decide for themselves what kind of training

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they're going to get, each year, for instance; rather than looking to their supervisor to tell them what courses they should take. I think people's personal lives are more complex, today. There are more two-wage-earner families. The consequences of relocating, today, are greater, in many cases than they used to be. Because of the two-wage-earner situation. And, so, the company is forced to allow people some discretion on their own, whether they want to accept or not accept offers that involve moving.

**Q: You said the company is doing better now?**

Magee: Each person is getting more work done, now, than we did a few years ago. We've got some better tools to work with than we had before. And I think people are working harder than they were before. And people are being expected to do more different kinds of things than they were before. And the end result of that is that the company's doing better.

**Q: Is there more expected of people?**

Magee: Yes. I think more is expected of people, and more is expected of the instructors. We are expected, more today, to keep up with what the people out in the working divisions are doing, and tailor courses to what they need today, now. We have more of what we call "just-in-time" training. In the past, the training curriculum was much like a college curriculum. It was set. Certain courses were taught, year after year. But, more recently, different business units operate in different ways, and we have to tailor the training to the people in each unit. And that makes the job much more demanding.

**Q: How do you think this is going to play into the future?**

Magee: Well, it's hard to predict the future. I think the move towards outsourcing that all companies are going through, now -- I think this is happening, some, in Shell. I think some work that our engineers have done before, we've had outside companies do. One of the things that's changed fundamentally, and I think will continue, is that we have more of what we call "partnership alliances," where several companies join together to do a project, rather than Shell being the main company and everybody else works for them. We work together. And part of the result of that is that there are employees of other companies who are in our office, who have offices in our buildings, and the people work together much more. Our own engineers work more closely, more frequently, with people from other companies. And I think this changes some of the nature of some of our jobs. The engineer becomes more of a project manager. And I think that trend will continue.

**Q: Are there other skills that come to the fore, when you deal in those kinds of things? Again, you talked about communications, and those kinds of things. Are those skills going to become more important ?**

Magee: I think more judgments have to be made by the engineer. More project-management type judgments. People are past the point where they can ask their boss what they need to be doing, or how to do something. So, there's much more self-reliance. It's much increased. Yes.

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**Q: So, there's opportunities here for a great deal more input? But, also, there's an increased amount of responsibility and accountability on the part of the engineer.**

Magee: I think that's exactly right, and I what it says is that all of these personal skills and personality traits -- ability to communicate with others -- they become even more important than they were in the past. As I said, back over my history, twenty years ago and longer, the factors that made people more or less successful usually were not their technical capability. It's pretty much a given, in Shell, that the engineers have the capability they need, and it's the other factors that make the difference. And I think that's just becoming even more true, all the time.

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