

STEM SPOTLIGHT

Sean Kelly

Engineering Project Manager, Global Operations
Smith & Nephew, Inc.

Bachelors of Science in Engineering Technology, B.S.E.T.
University of Memphis



Q How did you select your college major?

A I started out my college career as undeclared. I had been working for a Veterinarian in the Memphis area and was unsure if I wanted to pursue that field or several other interests. All I could see was a degree at the end of the road. I also thought about landscape architecture, technical sales and even biomechanical engineering. It took me the first three years at the University of Memphis as well as working in industry to finally determine what degree I wanted to pursue. As I was advised by multiple people, I took classes that would apply to my general education requirements for engineering just to prevent having to go back and take the higher level class again, if this was the path I would eventually choose to go down. In my job, I ended up working with electrical, automation and control as part of our projects and fell in love with being able to automate processes and make systems as autonomous as possible. I happened to have an advisor who came from a similar background and he and I had some great discussions and crafted the remainder of my college career around the pursuit of this knowledge base, while taking cross-over engineering classes to keep me well rounded for other engineering principles.

Q What was the biggest influence in your selection of major/career?

A My biggest influence in pursuing higher education which led to my major and ultimately my career was two-fold: my grandfather and father. Both of them were adamant about pursuing higher education. My grandfather survived the great depression and WWII and worked very hard as a stone mason. My father worked for him in the Arizona summers and was influenced by him to pursue his education to not have to work such a demanding and physical job. Both of them passed this on to my brother and I, so much so, that we didn't really know there was any other option. All of us were always tinkering or fixing things, but we all had separate abilities, so it made for some interesting outcomes.

Q If you could go back to high school and select any elective course to take that would have better prepared you for college, what would it be?

A I would have to say that my current top choice would be oral communication and any course that would help with verbal communication such as public speaking and debate. A close second would be critical thinking and logic skills with a third being written communication. Based on what and where my career has taken me, communication is one area that I feel has always had a need for improvement. I always thought that I didn't need a "speech" class. This couldn't be further from the truth in a technical field. The need for better communication has been constant especially for a technical role. Anything one can do to be a better verbal and written communicator is worth the time invested for any STEM career.

Q What is your favorite aspect of your job?

A I am not a person who likes to sit behind a desk and design, so diversity in my day is my favorite aspect. We are a highly matrixed organization with many people in different roles that are required for developing our products. I have a job that allows me to interact with many of these roles (engineers, technicians, production personnel and a myriad of others) who go into making our products. I love that I can be on the shop floor interacting with our production partners for new processes, but in the same day, working with other engineers in establishing new products.



***Catalyst Recovery and Purification System
Vera Cruz, Mexico***

Q How do you/your company make a positive impact on society/our community?

A In my opinion, our largest positive impact is providing products that help people regain their lives. I have worked in the Chemical/Environmental industry in helping our environment, but you don't necessarily see the direct results. Working in the medical device industry really has been rewarding with being able to hear and see people who are enabled to walk again and enjoy their recovered mobility. Being able to truly help someone regain their life is a wonderful and rewarding positive impact. The company I work for has a great philanthropic policy as well, which involves all of us with many different opportunities in helping people and organizations around the world.

Q What is the most interesting thing you have been able to do in your career?

A There are many different things that have been very interesting to me. I have been able to travel to the Asia-Pacific region, Mexico and around the US working with different systems and implementing technology. I have worked with many different companies each with their own technologies. But the most interesting thing would be the role I had as a project manager for a one million gallon a day water treatment plant to aid a remediation effort. I worked in Tampa, Florida for about nine months designing, building and commissioning a water remediation plant from nothing but a pitch black warehouse. I was responsible for the design and build of everything, including electricity, lighting, facilities, office space and the plant itself. This took all of my education and knowledge to be able to pull this together in such a short time period.

Q What makes you get up each morning excited about your profession?

A I have been fortunate to be able to either help the environment or people directly in my career. Being involved in a STEM career, there are a myriad of ways to help. I get up every morning going to work thinking, "What am I going to do today to help someone regain their life?" My mother had severe osteo and rheumatoid arthritis, so I know what it is like for people to not have mobility from something so debilitating, so being able to give back and help others with arthritis keeps me passionate.

Q How does your career incorporate STEM (Science, Technology, Engineering, and Math)?

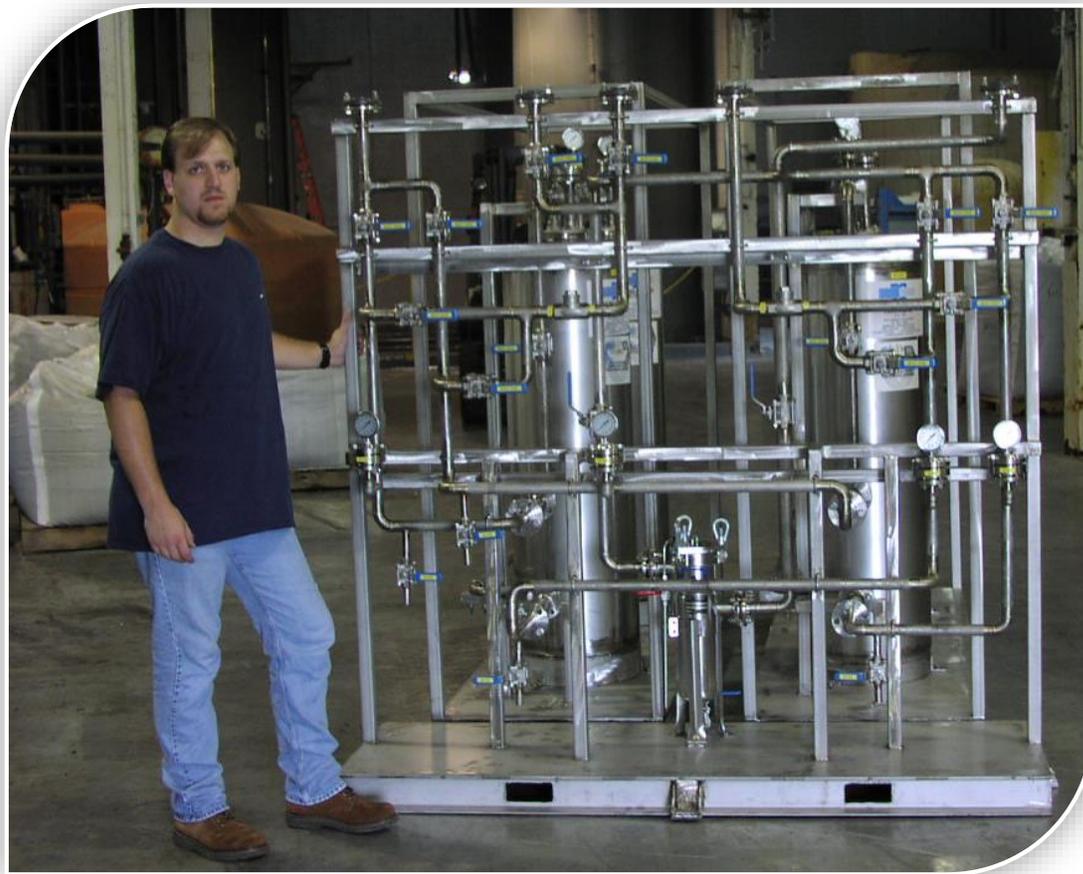
A I have touched on every facet of STEM in my career, from being a technician (veterinary and lab), engineer (pilot plant, design, systems, manufacturing and project) and now a project manager. I have many examples, but here are just a few:

Science I used chemistry and physics when I was in the chemical/environmental industry to design separation systems. I used biology and life science when I was working for a veterinarian and now with bone anatomy in my current role.

Technology I have designed remote monitoring systems, complete IT infrastructures, PLC controlled systems to now developing CNC equipment based processes for building orthopaedic implants and instruments.

Engineering I have used engineering skills for designing and trouble-shooting electrical, IT and chemical systems. We use our engineering expertise for developing and improving manufacturing processes for medical devices.

Math I use math on a daily basis from simple math up to and including statistical analysis methods for process improvement, control and validation. I am an engineer at heart, so I love the art of a spreadsheet, which involves math and logic functions. In project management, I use math for analysis, Key Performance Indicators, schedules and even budgeting.



**Specialty Chemical Absorption / Purification System
South East United States**

Q What advice would you like to share with K-12 students who are considering your profession?

A This is timely since I have a 9 year old daughter that is starting to be inquisitive about these types of things. I find myself saying the same things my parents told me. The key is to always keep a “you can do anything and never quit” attitude. Just like Edison, who said he found 10,000 ways not to make a light bulb before finding the right way. If you want to be a doctor or an engineer, it isn’t always easy, but you can do it. You have to develop the right study habits and apply yourself to learn. Study and learn the basics with science and math classes and don’t forget communication skills.