

International Women in Engineering Day: In Conversation

Episode one

Voiceover [00:00:03] This podcast is brought to you by the University of Aberdeen.

Sarah [00:00:10] Hello, everyone, my name is Sarah and I am the managing director of Texas based here in Aberdeen, operating across Scotland, but I am, in fact a University of Aberdeen alumni. We have today the first in our series. We're kicking off in a brilliant way with Professor Ana Ivanovic from the School of Engineering here at the University of Aberdeen. Thank you for joining us today.

Ana [00:00:30] Thank you very much for having me.

Sarah [00:00:32] I think it's only right that we start by giving you the opportunity to give a short introduction of who you are and what you do.

Ana [00:00:37] Thank you, I'm Ana. Professionally, I am a chartered engineer. I'm an academic professor in civil engineering at the University of Everything. I'm also diversity and quality officer and director of internationalisation. But privately I'm much more so. I teach. I collaborate with other international universities. I do research, I manage people. I like solving problems, something that has pulled me into academia, really, because I always like to explore, to find solutions that will make structure safe and ultimately that will make people safe. To that end, I've been involved in projects that make tunnels safe, making fishing boats safe, making pipelines safe from being hit by icebergs and more recently, I've been looking into removing structures off to the end of their life in a safe and environmentally sound way.

Sarah [00:01:39] Lots and lots and lots problem-solving, something that you and your colleagues in engineering have in abundance and also know. No two days sound like they've ever been the same. It sounds like you get the opportunity to do lots of different things in the grass. Never grows under your feet. It's amazing and your role at the university sounds like you've had an opportunity to really take on lots of different challenges as well as these different collaborations adapted. It's amazing. How is your career developed in engineering and what inspired you to start teaching?

Ana [00:02:12] Yes, so interesting enough, I grew up in an engineering family, so both my parents were civil engineers and throughout my teenage years, I grew up hearing a lot about engineering concepts, about construction sites, about project design and inspiration actually came when we were building our summer house and at that point I really wanted to be involved fully that so and I wanted to work on the side to actually see how things work and to see how they developed and that really got me hooked into design and seeing things being made and my mum has been kind of inspirational to me because some activities that she was involved in were a bit hands on. Armed with a power, that knowledge proved she was the one who was designing the construction rather than actually building it and because the reason why I'm saying this is I've heard quite a number of times that women do not choose engineering because they feel it is a profession that involves manual work that actually can be physically demanding and it doesn't have to be that way in a majority of cases It's not really

Sarah [00:03:34] there's so many great success stories and we're giving children as young as possible the chance to do engineering and to have that ability to utilise their different skill sets, the creativity, the problem-solving, the teamwork so that they can really get

hands on. And that project-based learning, it's of the best parts of my job. That sounds like your project based learning opportunity was building this summer house. It also sounds like your home environment provided you to be inspired if your parents weren't actually teaching you. I think it makes a really big difference if you're if your parents are wanting you to be part of a process and actively involving children in something, the very definition of successful teaching, inspiring that it can be so effective. It sounds that you had it. I can imagine that the chances of you not being an engineer by profession, because we're strong believers at first, that we're all engineers in some degree, but we perhaps lack the confidence or the opportunity to think we could go on and do that professionally in our in our career. I wouldn't say I'm an engineer because I put up IKEA furniture, but I do believe that is one of the first tests we all have to take on those challenges. But, yeah, you're right, design, engineering and all the different. There's so many more facets to engineering. It's amazing. What do you enjoy most about teaching at the University of Aberdeen, though?

Ana [00:04:57] Um, well, first of all, I like working with young people, really and I always like to feel that I'm still young and what I like about them and working with young people is seeing their potential and the yearning for the knowledge in their eyes and like to see the joy when things click. That is amazing. This is really, really amazing and what I like about Aberdeen and the way we teach is the flexibility we provide in terms of the courses we teach and the teaching methods that we use. So I like that we have some kind tutorial, small tutorial groups where we then by which we enable each student to be seen, to be heard, to be met where they are so that they can learn and be encouraged by others and I know for sure that our students really appreciate that as well. I like the fact that the teaching has changed over the decades. So, we teach corps engineering, but we also teach transferable skills. So, we prepare our students to present their work, to communicate their ideas, to appreciate their fellow students, and also to engage in different disciplines, just like in real life.

Sarah [00:06:19] Yeah, because this we don't work in a bubble. We don't learn in a bubble. It's that I think university is the first time where you really get a little bit more opportunity to be in a space that's similar to the challenges of work and what that looks like. So, it is it is it is exciting. Thinking about, obviously, as we celebrate Women in Engineering Day, how do you feel your experience has been as a woman in the engineering industry and academia?

Ana [00:06:50] Well, I can say that when I started, when I was a student, it was a mixed class, would have the number of female students at the time. Then I start teaching here in Aberdeen, the number of female students were fairly low. But I'm happy, too, to see that now. The numbers have increased in many disciplines, engineering disciplines at the university, for example, in civil engineering, as we some years, we have up to 40 percent of female students being in the class, some male and female engineers doing different flavours to a project. So it doesn't matter whether it's a student, an engineer working on a project or, you know, in any in any scenario, really, because we bring different flavours of projects and in order to get the best results, we really need both. So, I would simply say that creativity, fluidity and balance. So, we need to bring more of that to our engineering society. I think by bringing both female and male students and female and male engineers, we can achieve what

Sarah [00:08:05] I think any project that allows us to give people like your mum the chance to be the engineer that she was born to be. I think it's so important and sometimes it's you've got to start young, but initiatives like the Athena Swan Charter to recognise and to build that under-represent. I mean, I remember when that was introduced in the grand

scheme of things, really relatively recently, you know, addressing head on that we have a challenge that we want to we want to do make some steps to meet it. I think it makes a big difference. But it's something everyone you can't stop working at. You can't take your eye off the ball for one moment but the university is a great a great place, I think, for everyone to learn and study equally and see the opportunity.

Ana [00:08:51] I would just like to add, because you also asked me, what is my experience just being in maybe as a woman in a male dominated industry? So I work both in academia and industry, and I would like to say that I really felt privileged to work in that environment. So, it's not a scary environment. It is really could be rewarding. It's different and actually seeing these two different energies merging and they're producing something nice is really good. I felt good working and I don't see that I had a bad experience in any form shape. So, I've been treated as equal and then equal contributor to projects and was given opportunities and just so my experience has been very good.

Sarah [00:09:47] It's so important for us to share the positive. We're very quick to share the negative, but to celebrate the positive and give examples and, you know, confidence that this is a great industry for everybody and that everyone is welcome. There's nothing more magical than solving a problem together and you're more likely to do that with, as you say, that diversity of. Invoice, voice and experience and everyone coming together, it's it gives you the most, but not just a great solution, but a really robust solution, I think everybody thinking differently. That's what you want and it's not about it's not about gender itself. It's just it's about experience and just everybody feeling confident to challenge as well. I think confidence is a big thing that you can make, can make a big difference. So, giving women the confidence to speak up is something we take for granted but we need to keep seeing it. So, it's great that you're saying that sharing your good stories and more opportunities to do that the better be.

Ana [00:10:45] Yeah, I would say that we tend to be looked after because we're kind of minority, so then seem to be looked after. So, my experience that felt good.

Sarah [00:10:56] Oh, it's nice. It's as I say, it's lovely that you're that you're able to share that positive experience. Over the past few years, you have noticed an increase in and female students choosing and engineering is a subject. What do you think? Is that one thing that's made a difference or is it a combination of different initiatives? What do you think has been that that the reason for that increase that you mentioned?

Ana [00:11:24] Yeah, as I mentioned, yes. Before, I can see the girls see that engineering can be their career choice and in some ways to actually perform better as they tend to have a slightly different approach to their studies. They're often well prepared. And the contribution to that increase, I would say we as a school, we've been promoting engineering and local, secondary and primary schools. We have the women in engineering conference. We organise that four to two years. We are planning to do that again as soon as the pandemic is over and that's been really making girls aware of this career choice, give them an opportunity to see that that is equally exciting and creative

Sarah [00:12:16] and one that one that you can do for a long time. Even if you don't want to stay in one industry, you can, you know, switch a qualified engineer is I mean, we always talk about who you would take on a desert island and I think engineers I know I'm biased because my dad's an engineer. I've seen firsthand how good it is to have to have him on a project. Just making sure that the shelf stays up is always good, that its level is great. But it's the idea of those great skills, that knowledge, that ability to meet a challenge

and the tools that they've got in their toolbox. It's brilliant to have that there. So it's we want everyone to feel like this is the lifelong learning opportunity and that you can take that from one industry to another or from one sector to another or, you know, it's the different approaches. It's nice to have an engineer on every team. They don't necessarily have to be doing engineering for their career. You can't take away what you've learnt or the approach to learning the engineering has taught you.

Ana [00:13:20] It's Yeah. That's, that's yeah. That's true because we have quite a lot of students or a number of students who choose to go to engineering and just really do the hard, hard engineering but there we have a number of people just go on to become managers and Amazon or they can do the accountancy so they can really, really do anything, anything they want when they put their mind into it. That is the beauty of engineering. So, they have this ability to solve the problem and problem can be engineering, but could be anything else.

Sarah [00:13:59] It's a passport and I know we're going to later on we're going to speak to Regine in the series, who's a member of the sort of student support and recruitment and, you know, getting students into the workplace and getting them successfully picked for jobs and we're going to chat to her about this later on. But engineering is a passport and with that passport in your hand, you can do lots of things. So it's great to think that there's that diversity in the number of people who can do that and have got all of those tools as they as they approach some of the opportunities this year. Obviously, we're celebrating as part of women in engineering our engineering heroes and who is your engineering hero?

Ana [00:14:38] I think I've been asked that question a number of times over the years, and I would just say that. I'm not sure I have actually a hero, I think, but I would say that I get inspired by people, people from all walks of life and for example, I was inspired by the precision of my granny's tailoring that we still talk about. I'm inspired by the punctuality of some people who are never late for meetings, deadlines, dates. Right. I'm inspired by the clarity of how some people talk with a command of the language. I'm inspired by authenticity of some people to hold themselves for who they are instead of following the crowd. I am inspired by the humanity of great intellectuals and masters in their field. Really, I'm inspired by the people who will give when they have the least by the people that will invest in young people in terms of time and energy. So, I believe really that it's I'm inspired actually by the attitude, by people's attitudes. So, the way we approach one thing is the way we approach everything.

Sarah [00:16:00] What a lovely collection of inspirations that you've given but you you've also demonstrated how observant you are and how open you are to seeing those and celebrating those, which there's so much. You've got to see it. You've got to open your eyes to see it but there is you're right, this huge inspiration all around us and we to that that was lovely. What advice would you give to anyone who's considering studying engineering at university? and I know I am biased at the University of Aberdeen is excellent and I would 100 percent recommend going there and I have been known to persuade a student or two to pick Aberdeen over others. But we will pretend I didn't say that. But let's imagine you're just considering studying engineering at university. What advice would you give?

Ana [00:16:45] Right. So if you like, I would say to if you like creativity, if you like working in a team, if you like helping others, changing things for the better. Having fun, you like maths and physics and chemistry, or only some of them, engineering is where you can apply all these skills and work on interesting projects and perhaps one day you can

proudly pass by them, you know, structures and say, hey, this is the building, this is the bridge, this is a wind farm that I worked on and it's amazing feeling, really. I have a few of these that I would just go and there is something of pride that, you know, even if you were just bringing coffee to others on that project. Right, or just to getting one nail or just doing the whole thing, it's really something that brings these lovely feelings of pride and just something look, I contributed to the society, something that everyone is now using. So, and I would just say that to every month, remember that you can do anything, literally anything you want if you put your mind on it.

Sarah [00:18:09] Hard work, dedication and I love the idea that you can look at something and go, I was part of that. I was part of the solution. That's definitely I am and engineering is definitely one of those. If I could go back, I wish I'd paid a little bit more attention to physics and perhaps one of the opportunities I hope to look for, I look forward to working with you in the future. If we can give more young people that project based learning opportunity that you had, building things with your with your family growing up and the impact that that can have being inspired and just letting it's so important to try before you buy and to see it to be so. TechFest is like Velcro we never really let people go, but it's been lovely chatting to you today and I look forward to catching up with any future in the universe. He's very lucky to have you and the students there and I think it's I think it's a superb way of approaching life. So, thank you for sharing your thoughts.

Voiceover [00:19:09] This podcast is brought to you by the University of Aberdeen.