

Transcript – Podcast: Episode 3 - Engineering

Host: Paul Harlow, Lecturer

Guest speakers: Joseph Souter, HND Engineering graduate

[Intro music]

[Paul Harlow]

Welcome everybody to this podcast brought to you today by Moray College UHI. My name is Paul Harlow and I'm a lecturer from the engineering department where I teach electronics and embedded system design. I'm joined today by one of our former students now away at university. Introduce yourself, what's your name and when were you at college?

[Joseph Souter]

My name is Joseph Souter. I'm 20 years old and I was at college from 2017 to 2019 and I did my HNC in Engineering Systems and then went on and did my HND year after that as well. At the moment I'm at university following on from that HND.

[Paul Harlow]

Yeah, excellent. Were you on the NC or did you come straight in from school? I can't remember now.

[Joseph Souter]

No I came in from school actually yeah so I left school after fifth year so I was 16 when I first started and just went straight into the HNC.

[Paul Harlow]

All right yeah. Did you ever come to any of the like the open days and stuff we did beforehand when the schools came in?

[Joseph Souter]

Yes I did actually I did, I went to, I can't remember which year it was it might have been like 2015 or 2016 or something, I did go to one, I remember getting shown around Linkwood and shown into one of the electronics labs actually, I did think it was really interesting so um it was always in the back of my mind.

[Paul Harlow]

That was probably me that showed you around you know, it's so long ago now I can't remember.

[Joseph Souter]

It probably was. I do remember I think it might have been you or maybe Gary um somebody did a demonstration on multisim it was quite fascinating actually.

[Paul Harlow]

That would have been me or Gary. So when you came to college then did you already have a plan, were you sort of thinking I'm definitely going to university or I'm definitely going on to work or something else?

[Joseph Souter]

Um no to be honest I didn't really have much of a plan at all I didn't really enjoy school that much, I didn't really get on particularly well at school and I was just looking forward to leaving school so but I was always interested in engineering so I really just went to college to kind of find out more about myself and what I would want to do after that so it wasn't kind of my final plan but it was more of like a step in finding out what I wanted to do.

[Paul Harlow]

Ah that's interesting, see now I never knew that about you. How long have we known each other? I always thought you were like you know straight a student all the way.

[Joseph Souter]

Not at all I actually only got four Highers and I got a C in my Higher Maths so I really wasn't particularly good at all but I don't think it was for, like, it wasn't that I couldn't do this stuff I just didn't really enjoy the school environment like it was too, kind of, I don't know, too controlled and too, kind of, restrictive.

[Paul Harlow]

Yeah you're a free spirit, Joseph.

[Joseph Souter]

Yeah free spirit.

[Paul Harlow]

So the college then really, you know, well maybe did help you to get where you are at the moment, we will come to that in a bit, but what was good about college was the like the change of environment yeah?

[Joseph Souter]

Oh absolutely yeah I felt straight away that I was kind of treated as an adult I mean well to be fair I was only 16 at the time but I felt like I was treated as an adult given more responsibility for my own learning and alongside that like I was actually studying something that I was really kind of passionate about from the outset as well because I've always been interested in electronics and I think it was just great to kind of go into that in a more focused manner than just maybe doing a wee bit of electricity and physics in school it was much, much better than that.

[Paul Harlow]

Yeah because you'd already done quite a bit of home projects and things I remember.

[Joseph Souter]

Yes.

[Paul Harlow]

Your chicken coop project.

[Joseph Souter]

Yeah that was one of the first projects I'd done, I learned a wee bit about pickaxe microcontrollers in school and I just thought I wonder if I could do something useful with that so yeah knocked that together and it worked surprisingly enough.

[Paul Harlow]

I know yeah so if university doesn't work out for you, you can always kind of fall back on that make your fortune that way!

[Joseph Souter]

Yes exactly I know! Well the one that I built back in 2017 is actually still working today.

[Paul Harlow]

Is it? That's amazing yeah some farmer out there still looking after his chickens. So what then was your favourite subject when you when you were at college?

[Joseph Souter]

Em I think, well probably in the in HNC year probably analog electronics actually, I really enjoyed that because it was very, very practical and each week we were studying a different component and like writing up lab reports and stuff like that and it was really fascinating and then probably in the HND year although it was definitely probably one of the hardest things I've studied so far even at university I think the HND project was definitely one of my

favourite subjects because it's so good to just have that freedom to be entirely creative and just like work on an engineering system from the ground up and see how far we got with it so that was great fun I really enjoyed that yeah.

[Paul Harlow]

Yeah it'd be interesting when it when you go into your work placements to see just how close, you know, an actual commercial project the engineering projects that we did were you know, carried through, yeah.

[Joseph Souter]

Yeah. I enjoyed the engineering systems analysis as well because I think I'm an analytical person, that was really fascinating as well learning about laplace transforms and transfer functions all that lovely stuff, that was great fun yeah, yeah loved that.

[Paul Harlow]

Oh your tutors at university would love to hear that!

[Joseph Souter]

Last semester we had a similar subject to that called um it was like signal processing and control and it was just like that as well it was all to do with like big, kind of, transfer functions and doing pull zero plotting and nyquist diagrams and stuff, I just loved it, I mean the maths was really difficult but it was fascinating.

[Paul Harlow]

It's very, very satisfying, well I mean I've drawn with root locus diagrams and nyquist diagram things like that and when you kind of plot it you've got a nice curves on it yeah very satisfying to sit back and go wow that was that was two hours well spent.

[Joseph Souter]

Yes I know, you take a look at like you're trying to solve a system and it takes a full page of A4 and you take a step back and look at it like wow that's proper engineering.

[Paul Harlow]

Yeah yeah.

[Joseph Souter]

I look like a mathematician.

[Paul Harlow]

So those are your favourite subjects then, were they also the ones that you were the best at?

[Joseph Souter]

Em I think yeah I'm trying to think back now in my grades, I think I did do pretty well in engineering systems analysis actually and analog electronics as well so yeah I think I probably was good at them as well so yeah.

[Paul Harlow]

It's interesting, I mean you tend to kind of enjoy the ones that you kind of get, I mean it's just it's uh yeah maybe a little bit kind of frustrating bashing your head against something all the time even if you really kind of enjoy it yeah. So were they, out of interest, the subjects, your favourite subjects, the ones you've done the best at, have they turned out to be the most useful subjects or was that something else?

[Joseph Souter]

Em I, yeah, I think they have been useful actually certainly analog electronics and also the digital electronics module I did in the HND like that's massively helped me out going forward into university, I think if I hadn't covered them I would have been totally stuck even going into second year with the degree, so yeah all that kind of, all the kind of electronics theory and stuff's definitely carried forward and that's been very useful and I'd say the systems analysis stuff has as well it kind of gave me a bit of a head start when we actually did that signal processing control module I kind of I already knew a wee bit about transfer functions and the Laplace transform so it was no bother really yeah.

[Paul Harlow]

That's tedious so yeah that's really, really useful. I know it seems really heavy going when you're doing it when you come, you've been throw in to it for the first time, but yeah it's one of these things that you come back to and go oh right yeah no I get it now yeah.

[Joseph Souter]

Yes exactly it totally is yeah, yeah.

[Paul Harlow]

Yeah that's good. So when you were at the college, this is what I was thinking about, what it was like being a college, did you get to speak to your lecturers much, did you kind of chat with them much or were they just kind of there at the front of the classroom?

[Joseph Souter]

Yes yes I did yeah I think um probably more so in the HND year than HNC year purely because the class size was quite small when I was doing my HND, I think probably by the end of it I think there was only about seven or eight of us in the class so we definitely did have quite good relationships the lecturers, we definitely chatted to them quite a lot, almost in a sort of friendly manner, like I certainly felt like we were kind of treated as equals and lecturers were there to help us learn not just to tell us what to do like in school, so that was definitely very good, but even in the HNC year as well it was a bigger class size I definitely felt that the lecturers were always very approachable, it was good yeah.

[Paul Harlow]

That's good yeah, it's always difficult kind of because, you know, you want somebody there, you know, when you're a student you want the lecturer there to kind of be the one teaching you and be at the front and be the authority but at the same time like when you're doing your project or something you really want someone who can sit down and figure out a problem with.

[Joseph Souter]

Yeah exactly.

[Paul Harlow]

Yeah it's tricky to strike that balance really. How about the other people at the college like the workshop staff, Davey (learning assistant) in the workshop and people like that, and Hannah (engineering lecturer and learning assistant) who was helping out, did you deal with them much?

[Joseph Souter]

Em yes yeah particularly during the HND project yeah, Davey was a great help when we were coming to do our welding and machining for automated vehicles so yeah Davey he was good and Hannah as well, she helped us out a lot with the PCB manufacturer, so yeah they were they were both very approachable as well, always happy to help particularly with the projects, I think they were both quite interested in the project as well so that probably made a difference.

[Paul Harlow]

Mm yeah, yeah, no it's a real shame we don't do the HND anymore really because it was always good fun to, you know, to almost kind of like be part of your project group you know I kind of jump from group to group to group and you get in it and look at the problems you're having and scratch your head with you and go yeah that is a tricky one that sort of

stuff yeah, that's really good. How about you classmates, what was your class like at college?

[Joseph Souter]

My class was good actually I mean I came into being a kind of stranger because I just kind of jumped in straight from school I didn't really know anybody at all but everybody was very, very approachable and very happy to help. The other thing that kind of initially worried me that was I think I was probably the youngest in the class probably throughout the whole HND actually but certainly in the HNC when I was like 16, but everybody was very friendly and it was quite a good mixture of ages and backgrounds as well which I actually felt was really interesting coming from a school environment where everybody's just the same, so um yeah I thought it kind of opened my mind quite a lot, it was good.

[Paul Harlow]

Yeah that's true actually I hadn't really thought that yeah because there were there were a few kind of returning adult students and also the part timers tended to be coming in from employment as well. So you got on with them ok yeah?

[Joseph Souter]

Yes yeah, no em I thought everybody was really friendly actually yeah and I still speak to a couple of guys that I was quite close with now so yeah.

[Paul Harlow]

Ah I was going to ask you that yeah, are you still in touch with anybody from the college?

[Joseph Souter]

Yes I speak to some of them fairly regularly actually

[Paul Harlow]

Oh right yeah.

[Joseph Souter]

One's actually working for a company that's like PCB manufacturer I think he's actually working as an electronics technician or something so yeah he's doing well for himself yeah.

[Paul Harlow]

Right so you've already kind of told me that you're at, you're at university now so um where are you, what university are you at?

[Joseph Souter]

So I'm at Robert Gordon University in Aberdeen.

[Paul Harlow]

And what is it you're studying, what degree?

[Joseph Souter]

Um it's well the official title is Electronic and Electrical Engineering and it's a MEng (Masters of Engineering) course so Masters.

[Paul Harlow]

But you didn't start on the Masters did you or did you go into it?

[Joseph Souter]

No I didn't, I didn't start in the Masters, no. After the HND I went into second year, I did a kind of advanced entry thing and that was on the BEng (Bachelor of Engineering) Honours course and then I achieved quite good grades in my second year and that gave me the option to go into the Masters course and to be honest the first three years are pretty much the same between the BEng and the MEng the only difference is the placement and the extra summer modules for the MEng then the extra kind of semester at the end of that as well.

[Paul Harlow]

Yeah yeah, so I mean you must be- and it's always difficult kind of like you know to be pleased with yourself but you must be quite pleased that you know where you are now compared to you know when you left school.

[Joseph Souter]

Oh yeah absolutely I'm really, really delighted actually because I just I love the course I mean it's really, really challenging obviously and there's been times where I felt like I'm kind of tearing out the hair but it's great it's really, really interesting actually. Yah I think back to when I was at school I always kind of turned my nose up at university to an extent because I didn't really know very much about it, I just heard stories of people who went and studied courses and ended up in loads of debt and that kind of put me off it so I was like oh no I'll never go to university I'll just get an apprenticeship or something but you know I'm really, really glad that I did go down that route in the end because I can see myself improving and I can see myself getting into a really, really fascinating career so it's definitely going to be worth it.

[Paul Harlow]

I think that's the thing isn't it I mean I think it kind of it opens your opportunities up doesn't it.

[Joseph Souter]

Yeah absolutely, absolutely.

[Paul Harlow]

So what would you say then is, you know, now you've been at university for a while actually um what's the main difference between being at university and being at college?

[Joseph Souter]

Em I think probably one of the biggest differences is the class sizes I think, so my HND the class size was really quite small but when I came in to university certainly studying things like maths it was probably about 110 of us in the lecture hall so it was less of a kind of personal experience with the lecturers it was more just a case of them standing at the front of the hall and you just having to listen and then going away and kind of working on things on your own and that was quite a shock to the system at the start and but it's all good, I think that's probably one of the main differences also probably the level of expectation is a bit higher as well because certainly to stay on the MEng course you need to achieve certain grades and everything you need to basically achieve on average a B profile so there's quite a bit more pressure I think than in college and so yeah.

[Paul Harlow]

Do you like that though - is having that pressure on you good?

[Joseph Souter]

Yeah oh it is good it's quite motivating actually yeah, I mean there's been times I've been worried and like this has been really tough I don't know if I'll even manage to maintain the B profile but you know it is good yeah.

[Paul Harlow]

Yeah, I remember when I was at university and I'd get involved in some of the projects, some of the PhD students would come in and help on stuff, you know, and you'd be sat there in the room thinking wow you know this is a room full of really clever people, you know, I need to get I need to make sure I'm on my game here!

[Joseph Souter]

Yeah oh definitely.

[Paul Harlow]

Yeah.

[Joseph Souter]

I actually- I definitely felt that when I started uni as well I kind of got into the class and and although I said the class sizes were a bit different my class there's actually only 25 of us in it so, but I went into the class and I kind of I'd look around and I spoke to some people and I did get the impression that everybody was like seriously clever and I was like I'm really going to need to pull my socks up here if I want to stay afloat and particularly, in fact, the international students, I think there's three or four students that come from Iraq and they were sponsored by an oil company and they came to study here and they were just unbelievably intelligent, they just seemed to know absolutely everything from the start and that was very motivating as well because I kind of thought to myself, well you know if they're coming to study something like engineering in a foreign language and they're still getting good grades then surely me being a native I can get good grades as well so it kind of motivated me as well so that was good yeah.

[Paul Harlow]

Yeah when I was at university we had a lot of students coming from China, we had a lot of students from Malaysia as well, yeah, and Greece as well actually but yeah the Chinese students were just so full-on and so bright all the time you know. I did a my second year project with one of the Chinese guys, it was a programming project and yeah it was... I learned a lot that year.

[Joseph Souter]

I bet yeah, it's just the work ethic you know I don't know if it's a cultural thing or whatever it is but I just find that all international students have just got such a focus and such a drive like I think there's a lot to learn from it to be honest.

[Paul Harlow]

Is that something you'd think of doing, sort of going away, I don't suppose we do Erasmus anymore do we, but I mean taking a year abroad somewhere?

[Joseph Souter]

Yes I haven't- to be honest I haven't really considered it but I mean I think it would be really interesting, I've heard a lot of good things about doing that um so yeah if that opportunity came up in the future I probably would take it yeah.

[Paul Harlow]

Yeah I did a- I went away on a just a week trip to Germany on an Erasmus trip.

[Joseph Souter]

Oh really?

[Paul Harlow]

Yeah and it was a an international university so students from all over the world there and yeah I mean if you could take a year studying at a German university doing the sort of engineering they do there and the way they do it it's just absolutely amazing you know.

[Joseph Souter]

I bet it was yeah.

[Paul Harlow]

It's astonishing yeah.

[Joseph Souter]

Yeah, yeah, incredible.

[Paul Harlow]

I was going to ask you what your university class is like, obviously you know, I got thrown into like massive lectures of 100 plus students at university as well, but what's your engineering class like?

[Joseph Souter]

So well the electronic and electrical class is actually really quite small, there's only about 25 of us and compared to the mechanical class there's about 80 or 90 of them I think, so yeah relatively small class which I quite enjoy as well because it means that I've got to know pretty much everybody in the class and we have a bit of a kind of closer relationship with the lecturers as well, it reminds me a bit more of college and I quite like that learning environment so it's good yeah.

[Paul Harlow]

That's good, yeah. Are you working in project groups at all or is it all sort of individual at the moment.

[Joseph Souter]

Yes we were, so the latest project that I did was a simulation based project, it was a mobile manipulator robot project and there was six of us in that group so yeah that was a good size group as well. I think it's kind of probably the perfect size because a group larger than that would be a bit difficult to kind of control particularly doing it online as well would be quite difficult, it would be like herding kittens almost! But six's a good number yeah.

[Paul Harlow]

Yeah that's interesting that yeah, when I was at university, and again you know going back to I was at university in 1994 I think...

[Joseph Souter]

Right.

[Paul Harlow]

Yeah 94 and uh yeah my project, my second year project group was six people as well.

[Joseph Souter]

Really?

[Paul Harlow]

Must be like a size they know works yeah, that's interesting isn't it. Okay um obviously you're living away aren't you, you're living in Aberdeen - what's that like then moving out of home and living away?

[Joseph Souter]

Yes it's good, so my first year at university I moved into halls so that was- that's quite an interesting experience it was quite wild, I had the classic freshers experience, so that was really good and it's definitely kind of opened my mind moving away from home and moving into the city as well because obviously where I was before was pretty rural so it's been good actually yeah, I've really enjoyed it.

[Paul Harlow]

Right um last question then, I'll let you crack on cause you're a busy chap you know, I'll ask for some words of advice then. What should anybody in your view, anybody about to start a course at college definitely know first?

[Joseph Souter]

Um let me think about that... I think one very important thing when starting college or probably university is just to be aware of the fact that you are going to have to take

responsibility for your own learning and you know it's not going to be like school where the teachers basically force you to do the work. The lecturers are just there to provide you with the information and you really have to kind of take that information on board and then also go and do more learning outside of college and really study off your own back as well, I think that would probably my bit of advice is choose a subject that's interesting enough for you that you're kind of compelled to go away outside of college and study that on your own as well, I think that for me that made such a difference because I was really interested in the stuff that I was doing in college so I went home and I was reading about it and watching YouTube videos and whatever I think that definitely benefited my learning as well yeah.

[Paul Harlow]

That's interesting yeah I mean I would definitely echo that, I mean do something you actually want to do and something you're interested in.

[Joseph Souter]

Absolutely yeah.

[Paul Harlow]

Rather than something you think you ought to do you know because it just never works out does it.

[Joseph Souter]

Exactly yeah just choose something that you're kind of passionate about and that really sparks your interest, that'd be probably the best piece of advice yeah.

[Paul Harlow]

Yeah excellent that's brilliant, thank you very much Joseph.

[Joseph Souter]

No problem.

[Paul Harlow]

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