Engineering Personas for Learning Power Profile workshops
Jessika’s father, uncles and older brother are engineers so she never really thought of doing anything else at uni. Her marks at school were not outstanding but good enough to get into engineering with the bonus marks from the science and maths subjects she had done for the HSC.

Jessika still has trouble with some of the maths at uni, especially because in listening to her family’s stories of what they were doing at work, she had never heard them say how they had had to solve this Fourier transform or that triple integral. She muddled through the maths and physics with help from other students that she met up with in the FLP, and her brother has told her some useful websites to look at for engineering calculations as well. However, Jessika did much better at the engineering application type subjects as they seemed to involve more real engineering work. She knows from conversations over the dinner table that engineers have to work with other people and so she just ‘gets on with’ team projects.

Jessika still plays soccer for the local club that she joined when she was in the Under-10’s and last year did an umpiring course so that she could umpire junior games.
Will

Will is very intelligent and was often bored at the boarding school he attended. He comes from an upper middle class family in North Sydney. His Dad is an accountant for a multinational company and he didn’t see him much. He’s not particularly interested in Will’s studies or how he’s getting on, but he does want him to succeed at uni. Will is not close to his mother and has no siblings. His parents have minimal contact with each other after their divorce.

Will decided he wanted to be an engineer when he was in Year 8. He knew he needed good marks in maths so in Year 10 he started plotting his maths quiz results to make sure he was on track to achieve the result he wanted. He’s really strong in the computing, maths and physics subjects and likes these because solutions to problems in these subjects tend to be either right or wrong – either the coding works or it doesn’t. He really dislikes receiving negative feedback on his assignments and hates to fail – his father has always said that failure shouldn’t be in his vocabulary. He knows that if he can spend time by himself to think problems through he’ll be able to work it out. He can often work out solutions by looking for similar problems on YouTube or Facebook. Will prefers to do this work by himself rather than working with other people or having to rely on them as in group projects. He is also frustrated by problems that aren’t well defined – “just tell me what equation I need to use”.

Australian Learning & Teaching Fellows
Daniel had a gap year volunteering at a children’s home in Nepal between finishing the HSC and starting university. He had originally accepted a place in Business but changed this to Engineering after his experiences in Nepal. He had scored a high ATAR in the HSC with subjects like Biology, Economics, Music II, Advanced English and General Mathematics.

Despite taking a mathematics bridging course, Daniel found first year maths and physics classes difficult, but found Engineering Communications fun and easy. The EWB (Engineers Without Borders) project really resonated with the type of work he sees himself doing in the future and he likes working with other students in teams. He drew on the friendships with other students to help him with the more calculation intense subjects. He has also enrolled in the BCII (Bachelor of Creative Intelligence and Innovation) and looks forward to opportunities to brainstorm ideas and work collaboratively towards a solution.
Merindah lives with her parents and younger siblings in Waterloo. She hadn’t really thought of studying engineering but one of her teachers at school put her forward to go to the indigenous Australian engineering summer school because she was good at science. She is the first in her family to go to university and most of her friends from school are not going to university either. There is a lot of pressure from her friends to join them on weekends. Being the eldest child, her parents expect her to help out a lot with the younger kids, and this means that she sometimes has to miss lectures or tutorials to take them to school or pick them up afterwards.

When she is able to come to class regularly, Merindah is really good at putting concepts together from lectures and readings, and she has little problem in making sense of the material. She doesn’t accept things at face value and wants to understand things in more depth. However, she’s not comfortable learning in groups because she doesn’t feel confident in putting her ideas forward and hasn’t really made any friends in her classes. She had some contact with Jumbana before uni. started, but is too busy to visit them now.
Troy completed an Advanced Diploma in Mechanical Engineering and has been working for 8 years. He noticed however, that he would have more choice of interesting jobs if he had a degree, so he has enrolled in an engineering degree at UTS. Troy chose UTS because he thought he would be able to fit lectures at the CBD location around work. However, between work and helping his partner look after their two young kids there is not a lot of time for study, and with early starts for work, and night lectures, he is often tired.

Troy is frustrated when the ‘kids’ in class muck around and disrupt the lecture and he resents having to work in groups with them for assignments because they don’t know the basics (like how to use Google docs for file sharing or how to format a report), and never finish their part of the assignment on time. He much prefers to do assignments by himself since he can schedule his time to suit himself.
Alice moved to Australia last year without her parents. They want her to go to university and be an engineer so that she can get a respected job and earn a good salary. She is an only child but she is very sociable and has many friends. Her parents have worked very hard to get her here so she feels under pressure to make sure she does well at university.

She’s a very hard worker – she always got good grades in school back home. She diligently listens to what the teacher says and does exactly what she thinks is expected of her, but her grades haven’t been as good as she hoped. When she is faced with an open-ended question or a problem that doesn’t have a single right answer she becomes anxious and doesn’t know how to proceed. If there are rules to follow she is comfortable in her learning but when faced with complexity and uncertainty she gets confused and feels ‘groundless’.

In class, she nearly always sits with friends from the country that she grew up in and feels a strong sense of belonging to her cultural community. She likes learning with her friends and they will test each other in remembering definitions and equations. She has a strong drive to please others and do well.
Mohammed is a hard worker from a large family in Bankstown. His parents don’t speak English very well and his Dad is disabled following a car accident two years ago. He is the eldest son and it’s important that he looks after his family. The family worship with their local community that is very supportive of his family and of Mohammed, who is well respected.

Mohammed loves his uni work – he is studying engineering and thinking of going into construction and then into project management but hasn’t completely decided yet. He is waiting to see how he feels after his first internship. He gets on well with his uni friends although he’s more hard working and diligent than most, and doesn’t join in socially as much as others. His English is pretty good, though sometimes he struggles with the amount of writing that is required. He is sometimes late for class and even skips class occasionally as he works in a local shop to earn money for his family.
River was kicked out of home by dad who wants no contact, but mum still calls. River rents a room in a house in Marrickville which means having to work to pay for the rent and food. They still have contact with a couple of close friends from school, and their younger brother drops by on his way to school most days.

Working so much means River uses what’s posted on UTSOnline and YouTube for learning, rather than going to most lectures. They do try to go to tutorials though. River is cautious working in groups because of the stress of meeting new people who may not be comfortable with someone with a non-binary gender identity, and is even wary of lecturers and tutors after bad experiences with teachers at high school. Despite this River got high marks in Design & Technology (their work was exhibited in DesignTECH at the Powerhouse Museum), in Physics and in Advanced English. River wasn’t sure whether to enrol in Engineering or Architecture at uni and is waiting to see how the first internship goes to make a final decision.
Andrew grew up on a farm in Western NSW and enjoyed tinkering with tractors, farm machinery, and motorbikes so he decided to study engineering. He worked hard during the HSC and particularly focussed on higher level maths and physics and so found those subjects pretty easy when he hit university. He didn’t have to study much in first year and so spent a lot of time with his friends in university housing. He is really social and enjoys living with other people after growing up in an isolated community. However, sometimes his socialising gets in the way of uni and although his strong high school results carried him through the start of first year, as the content becomes increasingly complex he is starting to struggle a bit. Through his farming experience, he understands the practical parts of design and making sure things are easy to repair, but he isn’t doing as well as he’d like in the project based assignments.

One of his favourite parts of UTS is working with the Motorsports Team. He has really enjoyed getting to know other students who love working on cars. His plan is to go into farm machinery design when he graduates, although he’s not that optimistic that he’ll be able to find work in Australia and hasn’t been able to think about where else he could work instead. He is finding it hard seeing how the skills, knowledge and experience he is getting studying engineering might transfer to a different career path, and remains rigidly interested in farm machinery design.