

Engineer Your Career

Information from Industry for Student Engineers

Issue 14, Semester 1 2013



Mallika Kurup

BE (Hons) – Electrical and Electronics
The University of Auckland – Class of 2010
Electrical Engineer at AECOM

Engineering a rewarding career with AECOM

The Auckland Electrification Project (AEP) is a multimillion dollar scheme to upgrade the city's rail network and it is a project AECOM graduate electrical engineer Mallika Kurup is proud to be part of.

Mallika started at AECOM in January 2011 as a graduate electrical engineer in the Power Transmission and Distribution team – a role that involves the design of high voltage sub-transmission cables and rail earthing and bonding.

As Auckland takes vital steps towards its goal of being the world's most liveable city, Mallika is playing her part. Working as part of AECOM's AEP team she is involved in the earthing and bonding design of stations, bridges and other metalwork that will ultimately deliver a modern, well connected, sustainable rail network for Auckland.

She says, "The best part about working on this project is the opportunity to design, and also follow my design to construction as part of my secondment to the AEP site office."

"Field experience cannot be gained in lectures at University or by sitting in the office. There's just no substitute for getting out and having hands on experience – this is crucial to the learning of any engineer regardless of their discipline."

"Working on a big project like AEP has also exposed to me to working with other disciplines within AECOM such as Structural and Geotechnical, and has helped me realise how each discipline is interlinked with one another. There are very few engineering projects which involve only one discipline and I believe an engineer in the industry must be knowledgeable in all different aspects and disciplines of engineering."



AECOM is a firm of engineers, planners, designers technical specialists, project managers, economists, architects, sustainability specialists and climate change strategists. As part of the AECOM team, Mallika is connected to a global network of 45,000 people which offers her access to a vast range of skills, knowledge and expertise, rewarding work and exceptional training and career opportunities.

"Over the last two years I have been involved in AECOM's graduate programme which provides me and my fellow graduates with the opportunity to develop our people skills and understand how the business really works. At University, students are so engrossed in understanding the technical aspect of engineering that they often miss out on other engineering skills such as communication, risk management and project management."

These topics are just some of the material that is covered as part of AECOM's three year Growing Professional Skills (GPS) programme, designed to help bridge the gap between formal training and the workplace.

It comprises a range of core competencies and recommended training, external site visits, technical seminars, internal and external training and brings graduates from different disciplines and different regions around New Zealand together to train alongside one another. The GPS programme connects them to



local and global teams working in more than 125 countries to source a wealth of knowledge and experience.

Mallika is very positive about the work environment at AECOM. "My colleagues are always around to help and mentor me as I have progressed through my graduate programme. One of the best things about the company is that it's not always about work. Through AECOM I have taken part in Round the Bays, Children's Christmas parties, movie nights, morning teas, lunches and more!"

Asked if she has one piece of advice for other graduate engineers Mallika says, "If in doubt, always ask! There is no such thing as a wrong question. If you are ever unsure about something always ask and never assume."

To feature your company in Engineer Your Career contact Kevin Healey – k.healey@auckland.ac.nz

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Your Career Path into the future...

Cubic Defence New Zealand (CDNZ) is a leading hi-tech company specialising in the innovative design and development of laser-based simulation training systems. The company is part of Cubic Corporation, which has headquarters in San Diego, California and offices worldwide.

Cubic Corporation is a global leader in defence and transportation systems and services, providing air and ground military-training products and transportation fare-collection management systems to over 50 countries. A highly successful international company, Cubic has a strong track record of growth and innovation.

CDNZ is conveniently located in Mt Eden and easily accessible by car, train and bus.

Our Graduates



"CDNZ is a great place to start my career as an optics engineer. There is so much to learn about every aspect of engineering here. I see a lot of opportunities to grow in this company."

Every day is exciting and I learn new things. My assigned tasks keep me constantly on the go. I have already learnt so much in two months."

Arti Patel, Graduate Optics Engineer (Bachelor of Technology, Hons)

"CDNZ provides ample opportunities for graduates."

During my time here the Company has given me a taste of different aspects of engineering. I have learnt much about what engineers actually do in the fields of mechanical, electrical, process and automated test equipment engineering."



Muthu Chidambaram, Graduate ATE Engineer (BE Hons, Mechatronics)

Mentoring

The CDNZ Mentoring Program helps graduates to make the transition from student to CDNZ employee. Mentors help mentees in their professional development, both in terms of building skills and understanding the CDNZ 'culture'.

Graduates are exposed to a range of specializations through projects involving electronic, software, mechanical, optical, integrated logistics support, and system engineering disciplines.

Summer Internships

The CDNZ Summer Internship Program was launched in 2012 as part of an initiative to engage with local universities to undertake joint research, connect with amazing young local talent and to play a larger role in developing that talent for the good of the engineering community in New Zealand.

In 2012, CDNZ employed seven interns, with

assistance from the Ministry of Business Innovation and Employment. Each intern was assigned a research topic and a mentor. Projects included: upgrading Training Analysis software used to evaluate training effectiveness; determining a method to identify end of life for rechargeable batteries; capturing LEAN process maps for R&D projects; developing a Bluetooth module product interface; developing tools for modelling life cycle cost and spares; developing product support data packs; and performing a market analysis on a potential business opportunity.

Interns were rapidly integrated into the team and mentored through the design/build/test process on their projects. In ten busy weeks, all research was successfully completed and presented to an internal panel.

"The internship at Cubic Defence New Zealand Ltd has been a valuable experience, not only in furthering my knowledge as an engineer, but also in understanding the nuances and complexities of a corporate structure and how this structure drives innovation and productivity."

John Simpson, Summer Intern

"With the prototype I have developed this summer CDNZ is now able to demonstrate this new capability to customers and show that full commercialization of the project would be low risk."

Sam Bristow, Summer Intern

Contact CDNZ

CDNZ Human Resources
Email: cdnzcareers@cubic.com

CDNZ Summer Internship Programme Participants and Management



TRANSPORT YOUR CAREER



Here at Auckland Transport we are passionate about making Auckland the world's most liveable city.

We are committed to finding, implementing and supporting transport and roading solutions that make our city a better place to live, work and play in!

We know that it is our people that make this difference. Supportive leaders and enthusiastic staff play a vital part in our ability to grow and meet the challenges ahead. Each and every one of our team has a pivotal role in our future – and ultimately the future of Auckland.



Nick Craig | Graduate Engineer

I started with Auckland Transport in 2011 as a summer intern in the Infrastructure Development team which led on to a part-time role during my last year of study. In 2013, I started my graduate role with Auckland Transport as part of the Project New Grad programme which landed me in a different department, giving me a wider experience of the engineering profession.

I currently work in the Road Corridor Access team. I'm helping to plan the safe transportation of the Waterview Tunnel boring machine, one of the world's biggest ever machines, across the city's network of roads, bridges and culverts. I work with our consultants who carry out structural analysis, in real life and via computer software, to make sure that the route's capacity is not exceeded.

Since starting with Auckland Transport they have supported my career development with ongoing training and mentoring to help me become an effective, well rounded engineer on the path to IPENZ accreditation.

If you are looking for a graduate or intern opportunity where you will be involved in a range of projects then don't delay and start a new journey with Auckland Transport.

For further information on opportunities with Auckland Transport, visit careers.aucklandtransport.govt.nz or come and see us at the University of Auckland Engineering Careers Fair.

careers.aucklandtransport.govt.nz

MORE OPTIONS ONE CHOICE.



If you are looking to kick-start your career with a company that gives you options throughout your career, Beca could be it.

We're looking for well-rounded graduates, who have a knack for problem solving and a 'can do' attitude. If you're part of the next generation here at Beca, you'll be continually presented with all kinds of opportunities that combine to create the career you want to have. All you have to do is grab them!



Richard Parnell
Civil Engineer

"I chose a great vibe and hands-on experience.

At Beca you get a really good culture and a great social life. Everyone is really helpful; and you get rewarded for working hard. I spend about half my time on design work and the other half on sites, so I get to see my projects develop. I've also had the opportunity to get stuck into projects I could take responsibility for early on - Beca gives you the chance to show what you can do."

Beca Gives You Options

Whether you are clear about the direction you want to go in, or would like to keep your options open, at Beca you know that the opportunities will be there to shape a career that suits you.

A career is not only about the discipline that you choose to study and then pursue beyond graduation. There's a whole raft of other aspects you need to consider. As a Beca graduate, you are continually presented with all kinds of opportunities that combine to create the career you want to have.

For example:

- Find out about what happens in other disciplines, by working in a multi-disciplinary team,
- Choose from a range of career paths (other than as a technical expert) - maybe you're good at team management, project management or business development,
- Change your technical specialisation, as you learn more about what options are out there,
- Work on an overseas project, or relocate,
- Work towards professional registration,
- Be mentored by a more experienced colleague,
- Get involved in an industry organisation,
- Network with people from all over the business through our very active Social Club.

The upshot is, if you are proactive, the possible outcomes could be endless!

Apply online with your CV and transcripts before 17 May 2013 at www.becagraduates.com



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 Follow us at [Facebook.com/BecaGroup](https://www.facebook.com/BecaGroup)

Fonterra Technical Graduate Programme



Fonterra Dairy Cooperative is New Zealand largest dairy company, processing more than 21 billion litres of milk worldwide last year.

The products Fonterra make are exported around the world to over 100 markets, making us the world leader in providing dairy ingredients.

Fonterra employs more than 17,000 staff globally with approximately 10,000 employed in New Zealand. Last year, Fonterra had revenues of NZ\$19.8 billion

Fonterra Graduate Technical Programme (FGTP)

The FGTP is best suited to engineering, food technology and science graduates.

Over two years, graduates develop their skills and expertise through a series of practical placements and technical development.

As well as gaining great industry experience and building their own networks to assist with ongoing career development, graduates are supported by Fonterra to study towards a Masters of Dairy Science and Technology.

Past Successes

The Fonterra Graduate Technical Programme has been running for over 40 years and has seen the success of many individuals who have contributed hugely to Fonterra's achievements including three on our Senior Fonterra Management Team: Kelvin Wickham, Alex Turnbull and Paul Campbell. Another member of the FMT is an Auckland University Engineering School alumna - Maury Leyland.

Recent Graduates

Rosie Sargisson

Fonterra has given me incredible opportunities at the beginning of my career to learn, discover and grow. These opportunities have enabled me to kick start my career, but more importantly Fonterra has been a both a supportive and exciting environment, full of friends and lots of fun!

I joined Fonterra three years ago after finishing a Chemical and Materials Engineering degree at Auckland University.

In my first year I went through the Fonterra Technical Graduate Program, a year-long master's degree working in processing plants, attending lectures, and based at the world class research centre to do my thesis.

From there I spent two years in Fonterra's Optimisation business unit, where the aim is to determine what products we should manufacture to maximise return. Sitting in the centre of the business I gained a thorough understanding of what makes the dairy market tick.

In May I am moving to Singapore as an Account Manager to one of the largest food manufacturers in the world and one of Fonterra's biggest accounts.

Noel Calvin

I joined Fonterra through the FGTP programme at the end of 2007 after completing a Bachelor of Engineering from Auckland University. The FGTP programme was not only a great chance to cut my teeth in many different aspects of the dairy industry but to be able to go through all that with a great group of people made for quite the year.

As a part of the FGTP programme, one student per year/class is awarded the opportunity to head over to the Netherlands to work with Tetra Pak (a major equipment supplier to Fonterra). I was fortunate enough to win this fantastic opportunity which saw me working in a different culture, gaining exposure to a very different aspect of the business, meet more people and learn.

Upon finishing FGTP I worked for ~ 18 months as a process technologist. In this role I was supporting one of the largest milk powder plants within the company (at the time). This involved working with a diverse team of people across a number of projects and initiatives, problem solving with the underpinning ethos of continuous improvement.

In a company the size of Fonterra, there are a broad array of roles and opportunities available. With this in mind I thought that I should seize on this and try my hand at something different. Since the end of 2011 I have been a project manager within the Intellectual Property team. In this role I have been involved with a number of projects across many different parts of the business, the projects are all different and have all presented their own unique challenges. Within this business I continue to learn and grow and am consistently given the opportunity to challenge my boundaries, something I truly enjoy.



Rosie Sargisson



Noel Calvin



PATTLE DELAMORE PARTNERS LTD

A Wider Range of Experience at PDP

Mathew Chiaroni

BE Hons (Civil) - University of Auckland

After the first couple of days at PDP I did stormwater design concepts on an industrial site. This was a good project to start on because it gave me a good idea about what engineering design is and the level of detail which is required - even at the level of a conceptual design. Conceptual design is a good place to start, rather than detailed design which requires more specific technical knowledge which I don't necessarily have yet. I have done plenty of conceptual design for stormwater management and treated water management for industrial and local government clients. I have also done detailed design for a wastewater treatment plant where I was learning from more experienced engineers. I have had a good degree of autonomy, but there's always that support there.

What I've enjoyed the most is the opportunity to use computer modelling and stormwater modelling on real world problems. eg Hydraulic and hydrological modelling using HEC-HMS. I've also learned how to use 12D civil engineering software. It's good to learn as much as possible about relevant software at an early stage.

It's definitely met my expectations in terms of the diversity of work which I have been involved with. For the future - I'd like to try my hand in as many other facets of work at PDP as I can and then adopting a specialist role in an area I enjoy the most. Also obtaining CPEng and becoming a Chartered Professional Engineer. I've already had several meetings with my mentor.

David Chau

BE Hons (Civil) - University of Auckland

The first thing I was asked to do here was writing the Operations Manual for a wastewater treatment plant. It was a lot of words after being at uni, where it's more just numbers and calculations. It was quite intense because it required research rather than building on anything I had already learned. I had to read up on the project - although it was made easier working with a more experienced engineer close by.

After that I started doing an Options Assessment for an industrial wastewater treatment plant. This then progressed through to doing the Preliminary Design, the Detailed



Mathew Chiaroni



David Chau

Design and then the Construction Monitoring for the project. This has now been over 12 months and involved the upgrade of an existing meat processing plant with ultraviolet treatment to minimise bacteria in the wastewater. Apart from experiencing the lifecycle of a project, it's been interesting to see that the scope has been more than expected because it involved working around the existing infrastructure (pumps and pipework) to minimise disruption to the plant.

I've enjoyed heading out on site. Each week I've been out for a couple of days at a time. This will go on for another couple of months. After Commissioning, will come writing the Operations Manual which will be mainly office based.

I would recommend PDP because you get the chance to try out different things. You get exposure to work experiences and to different types of work.

More About PDP

PDP is a medium size environmental consultancy with over 25 years in the business and offices throughout NZ. We are an IPENZ Professional Development Partner and provide rapid development opportunities for high calibre people. See www.pdp.co.nz and attend our Evening Presentation: 6pm on Thursday 16 May in Lecture Room 403.404 at the School of Engineering, for more information.



Mathew Chiaroni



Who are TW?

Transfield Worley (TW) is New Zealand's leading engineering & project delivery organisation dealing in project management, design, construction and maintenance of industrial plants. TW execute projects in the Hydrocarbons, Industrial, Mining and Minerals, Food and Beverage, and Power sectors, and are involved in Energy Management projects through their energy efficiency division - Demand Response (www.demandresponse.co.nz).

In the last few years, TW has completed design and build projects such as the McKee LPG plant for Todd Energy, the Ahuroa Gas Storage facility for Contact Energy (a first of its kind in NZ), the lignite to Briquette Demonstration Plant for Solid Energy and Delegat's impressive Marlborough Winery, to name a few. TW also provides maintenance engineering, project & programme management and shutdown management services to a range of industrial clients.

Why did I choose TW?

Coming through my last year at University, I knew I wanted to get work in the industrial sector but didn't want to specialise too early. TW attracted my interest because of the range of industries they work in, their graduate development programme, and the complexity of projects they can deliver. They also have strong links into WorleyParsons, a global engineering consultancy with offices all around the world as well as Transfield Services, global provider of operations, maintenance and construction services.

Since starting with TW in Jan 2011, I have been involved in large and small projects for Oil and Gas, Power and Mining clients around NZ. I have had the opportunity to travel to our regional offices around NZ, volunteered for a secondment to a client company in the Mining and Minerals sector, and been heavily involved in our graduate development programme. I helped with the recruitment of new graduates, planned social events, site visits and training courses. One of the most gratifying things about working for TW is that more experienced colleagues are always ready to give advice and support as I come up to speed. Working life is all about what you decide to make it and TW will support you in your chosen career direction!

What is the graduate programme about?

Being a director in the Graduate Development Organisation (GDO) at TW is empowering as you get to manage your own budget, and so decide what events and activities will happen each year. I have especially enjoyed the various sporting challenges that the GDO has recently organised as well as the various social activities the GDO offers. Having such a great group of young people in the business has made my time with TW extremely enjoyable!

Why New Plymouth?

New Plymouth is the hub of the Hydrocarbons industry in NZ and is the natural choice for our head office. New Plymouth also just happens to be an ideal place if you love sports, the outdoors, and beaches. With just under 30 graduates working for TW in New Plymouth, there is a vibrant social scene out of work too. New Plymouth punches far above its weight for a small city, and there is always heaps going on. Events like WOMAD, the Festival of Lights and the Round the Mountain Relay have been some of my highlights!

Where are they now? Catch up with 3 former WEN girls, now Professional Engineers.



Sarah Young
Software Engineer

I decided to go into the software industry (although I had an Arts degree along with my Engineering one) because I assumed that that would be the easiest way to find a job. I had never been particularly interested in computers, but my brother encouraged me in that direction, and I found I was actually pretty good at programming. Years later, my father told me he was surprised by my career choice – he thought I was more of an artist.

Fortunately, my work has a creative element. As a developer, there were certain aesthetics I could instil in the code base. In my current role as a business analyst, I get to help define the software that is built, from what the product actually does, to how a user interacts with it. I take great satisfaction in seeing the purpose of the work I am doing, and coming up with good solutions to problems.

Another benefit of working with software is that your skills are internationally transferable, and lend themselves to flexible working hours. While I stick to frequent holidays, I know of others who work from home from the other side of the world, earning good money while living somewhere where the cost of living is low.

You can also build something without having much in the bank. Just take a look at the 17-year-old who recently sold a text-summarizing app named Summly for what was reported to be US\$30 million. Much as I love my job, you can bet I am trying to come up with the next great idea in my spare time!



Kate Meyer
Senior Consultant | ESD Leader

When I graduated in 2007 I would not have believed you if you had told me that in 2013 I would be leading a sustainable buildings team in Perth (of all places!) living in and renovating a 110 year old cottage that was falling down around my ears and to top it off be married and 6 months pregnant!

I fell into rather than planned a career in sustainable buildings however luckily I have loved it. It took me to Singapore for four years and then to Perth in early 2012.

My role in Perth was to start a new team in an existing Arup office which did not previously offer sustainable building consultancy. It has been a dramatic change from actually working as a consultant as I had done for the past 5 years as my job became 80% sales. I wouldn't say that it is my preferred role but it has been a great experience and I have won some really exciting projects so far.

Although growing the team in Perth has been exciting, a lot of my energy (what is left of it) is now going into the extremely unfamiliar territory of shopping for prams and whatnot whilst negotiating plans for while I am on leave and when I get back to work!

Although I expect the 2007 me would not have been particularly captivated by where I would end up in 6 years, the 2013 me has had and is still having a fantastic time and is looking forwards with interest as to what might happen next rather than making any distinct plans.



Kezia Lloyd
Acoustics Engineer

I graduated from the University Of Auckland School Of Engineering in 2007 specialising in Mechatronics. During my degree I took the Acoustics paper offered in the final year which led me to take a role as an Acoustic Engineer with a local building services company.

In this role I have progressed to specialise in Building Acoustics in which I provide consultancy advice to Property Developers, Architects, and other Services Engineers. In Acoustic Engineering I have a very broad view point of the design of a building and my advice impacts on the planning process, architectural finishes and constructions, structural engineering, mechanical services within the building and more.

In the few years since my graduation, my role as an Acoustics Engineer has allowed me to work in New Zealand, Australia and the United Kingdom where I have advised on projects throughout the world; including, Museums in the Middle East, Skyscrapers in Saudi Arabia, Future City planning in China and Universities in the UK.

My career path and position have led me to follow Building Acoustics up to this point, however, expanding knowledge or transitioning are very real future opportunities along with career progression to management.