

EngD alumni

So what happens to the Research Engineers after graduation? Click on the links for some real life examples of the career paths of our recent graduates. Some have remained with their sponsoring companies, whilst others have joined other companies that sponsored projects at the University. But over 75% of our graduates remain in the field of Formulation Engineering whilst some have moved into equally rewarding sectors.



Dr Zoe Brown

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“ Since finishing my Engineering doctorate I have worked in the research and development department at Cadbury (now Kraft!) based in Bournville, Birmingham. Although this was not the company that sponsored my EngD, the networking that took place during my time at Birmingham and the experience I had gained enabled me to secure the position that I have now.

Prior to my EngD I had completed a degree in Chemistry and was left not knowing where to go next! The EngD was perfect for me as it enabled me to gain engineering skills and also take part in taught courses. I became particularly interested in the food-related modules and confirmed my desire to work in the food industry. I spent some time living and working out at Unilever (my sponsor company) in Vlaardingen, The Netherlands from which I gained valuable industrial experience.

I have been working at Cadbury for two years now mainly working on the commercialisation of products - taking a product from the small scale development stage and making it on a much larger scale in the factory. This can be anything from making a small change in a recipe to a completely new product. I lead projects from an R&D perspective right through from design to launch of the product. I have previously worked on the commercialisation of products such as Green and Blacks moulded bars and KOKO truffles, enabling me to learn about various technologies that are used within the confectionery industry. I have recently started a new role where I will gain experience developing and commercialising products that fall into the 'bitesize' category which will expose me to different products and technologies.

There are lots of things to consider during commercialisation of products, including many challenges and unexpected problems to overcome. Projects typically involve interaction with colleagues in marketing, procurement, engineering, manufacturing, supply planning and sensory departments so I get a lot of exposure to the rest of the business. Both the theoretical and practical aspects of the EngD has played an important part in preparing me for a role in industry.

Despite working in a more general scientific area than a specific engineering role, I find the knowledge gained during my EngD has been particularly useful when working alongside engineering colleagues and also whilst running trials in the factory environment. I have been able to show great technical understanding when working on projects and the general skills gained during my EngD such as organisation, time management and report writing have also been hugely beneficial.



Dr Iwan Edwards

“ Following completion of my Engineering Doctorate studies in 2008 I have continued working with Johnson Matthey within their Process Technologies division. I now work as a Process Engineer providing support to a number of business units based on their research site on Teesside. The variety of experience I have gained both during and since my EngD studies has allowed me to become a chartered member of the IChemE.

The research activities focus on both developing new products and manufacturing processes for a wide range of applications. In my role I am involved in designing and commissioning pilot scale process plants. These are then used to mimic customer plants for performance testing and develop manufacturing processes. I am also involved in supporting existing research assets, which involves troubleshooting, modifications and performance reviews.

Dr Alex Heuer

“ It was literally a day after handing in my EngD thesis, that I began a stint as Post-Doctoral Research Fellow within the Chemical Engineering department. I had spent the final year while writing up my thesis, based at Birmingham, instead of down at Unilever who were the sponsoring company of my EngD. This is partly what enabled the transition into the Post.Doc Fellowship. During my write-up, I got exposure to fellow PhD students and it was also where I got the chance to supervise the lab-work of 12 MSc. students, which was hard work, but an involvement in academia which I greatly enjoyed.

The EngD thesis can be structured in a modular way (i.e. the content from Chapter 1 does not necessarily have to flow directly into that of Chapter 2 or indeed have to relate to it whatsoever. This is an aspect which is very different from how a PhD has to be prepared, where one Chapter almost always has to follow the content of the previous one). The industrial exposure to a real problem which needed answers added to the fact of industrially relevant training given by Unilever; were all invaluable experiences that I was exposed to thanks to the EngD programme.

In my case the subjects of my thesis were the stability of Ice-cream and reformulated whipping creams (hence why I



found the ability to split-stream my thesis particularly useful!).

Once my Post.Doc came to an end, Malvern Instruments hired me. I am part of the Applications Department and working on all aspects involved with the new Kinexus rheometer – be it analysing incoming samples, meeting colleagues from our worldwide partner sites, helping with user training and also interacting with worldwide distributors of the Malvern products. Working within the Applications sector I will be able to get to know the entire plethora of products that Malvern carry, an opportunity that I am really looking forward to!

Although I am currently and primarily looking after the Kinexus side of things, I might also sometimes be required to field questions arising from their previous platforms like the Gemini rheometer. It is envisaged that I will also work on an ad hoc basis with Zetasizer equipment and also on instruments like the Morphologi G3, a particle characteriser.

So far, in the very short time I have spent working with the Kinexus rheometer, I have already had the opportunity to analyse such varied products as Inkjet printer inks, adhesives for medical bags, tacky window sealants, greases, cosmetic hair removal waxes, thermo-setting paints, chocolate fondant mousses, food preservation solutions and concentrated food flavourings. There's never a dull day in the Apps Labs, that's for sure! The work is incredibly interesting and varied, in that each sample brings with it new and varied challenges and also many-a-time intricate questions that need asking before analysis can begin. The exposure I had during my EngD to two of Malvern's instruments, in addition to my industrial training – I think helped me in many ways secure my current job.



Dr John Ritchie

“ Since leaving Birmingham, I have worked for Production Services Network (UK) Ltd in Aberdeen, initially as a Process Engineer, but have recently been contracted to a major oil and gas operator as a Development Engineer. I have worked on a wide range of projects in those three years, from spending a month offshore in Cameroon, assessing a Floating Storage and Offloading (FSO) vessel ahead of a major safety study, to designing processes and equipment for major capital projects in the North Sea. In my current role, I am responsible for assessing the feasibility of – and subsequently project managing – projects to boost production from a significant number of fields in the Southern North Sea. My current job requires sound commercial knowledge, combined with excellent technical understanding of the project implications, neither of which I would possess had I not completed the EngD.

The oil and gas industry views its employees primarily in terms of their professional competencies, rather than academic qualifications, but the on-the-job commercial experience I gained on the EngD has set me apart from my peers. This was substantiated when I applied to become a Chartered Engineer a few months after being awarded the EngD. I used a number of examples from the EngD in my application, and the IChemE judged that the EngD would count as a full four years worth of experience. I was delighted to be awarded Corporate Membership of the IChemE and Chartered Engineer status within a year of my EngD graduation.

The EngD has been an enabling qualification for me. Having moved to an industry where the tackling of operational issues is valued over academic research skills, I still consider the EngD and the skills I gained on it to have set me apart from my peers.



Dr Richard Tamblyn

“ I spent the 4 years of my EngD with Imerys, in Cornwall. I arrived with a very open project brief, giving me the opportunity to take the project in whichever direction I chose, but also forcing me to comprehensively understand existing work in the field, and look out for where the opportunities may lie.

Over the four years, I was able to produce a thesis that I was very proud of academically, but I also hope that it is a document that will continue to be of interest to Imerys and elsewhere. Working in a large and varied company such as Imerys allowed me to get real experience with people from a range of business sectors and geographical locations.

After finishing my EngD I spent some time working for a consultancy company in London, before returning to Imerys in the Pigments for Paper division as a Chemical Engineer. I'm pleased to be working at the full production scale on the same processes which I had previously studied in the lab, specifically the grinding of calcium carbonate for paper applications, which is one of the largest consumers of energy for the company, and so my work represents an excellent opportunity to not just reduce its costs, but also the carbon footprint of its products.

Dr Rachel Thomas

“ I spent the four years of my Engineering Doctorate based in St Austell, Cornwall, working for Imerys Minerals Ltd. The project was related to one of their production facilities, the calcination of kaolin, and was designed to provide a better understanding of the principles behind the calcination of kaolin in order to enhance the efficiency, quality and sustainability of the Imerys calcining operations.

The project itself involved a lot of laboratory scale work, attempting to determine which factors were important for product quality and consistency, alongside which I developed predictive models for future use by the company. This helped me develop both time and project management skills over the course of the four years. Large-scale projects where I was part of a team trying to solve a particular problem led to improved communication skills and experience of dealing with a variety of people, of differing age and experience, abilities which have proved valuable since.

Upon finishing my EngD, I started work as a Research Fellow at Birmingham University, working on developing a system for the extrusion of beta alumina tubes for use in batteries for electronic vehicles. Without the EngD scheme, this opportunity wouldn't have arisen, as I am working for one of the supervisors from my EngD project. Although the work was designed as a single year project, we have recently obtained funding for a second year, expanding the precision and scale-up of the process.

As I have continued to work in the field of research, rather than enter industry, many of the skills I developed as part of my EngD have been extremely relevant, particularly time management skills and perseverance in pursuing a project goal.



Dr Michele Marigo

“ Prior to starting an EngD I completed a Mechanical Engineering Degree with Masters at the University of Padua in Italy. Within this degree I gained skills and knowledge of mechanical engineering that would later help me in the EngD and I completed a research project regarding the application of the local approach combined with a FE modelling technique for fatigue analysis of a steel tubular fillet-welded joint. I then went on to gain some industrial experience working as a mechanical engineer in a tool manufacturing company before joining the EngD program in Birmingham in 2006.

I completed an EngD based at Johnson Matthey in Teesside, working on particle technology. Specifically, the research I did was to create greater understanding of particle mixing. This was done by modeling using Discrete Element Method (DEM) and making comparisons with experimental data gathered using Positron emission Particle Tracking (PEPT). I also looked at different techniques to characterize particulate material mechanical properties. During the EngD I had independence to decide where to go with my project and how to investigate the problem I was given. The first 3 years of the EngD were funded by a Marie Curie sponsorship (Framework 6 Marie Curie Action "NEWGROWTH") and the final year was funded by Johnson Matthey. Within the EngD, I gained essential business, management, networking, presentation and scientific/ engineering skills, as well as a fluency in English! Some of these skills were gained from undertaking the EngD specific modules but also some were gained from working within Johnson Matthey. As part of the EngD program I was able to attend and present at a vast array of conferences including the World congress of Chemical Engineering in Montreal, Canada in 2009. The research I did within the EngD has resulted in publication of a number of peer-reviewed research papers.

Upon completion of my EngD I was employed in Johnson Matthey's Core Science team, where I continued to work under my EngD industrial supervisor. During my EngD I gained experience and networking opportunities that I use in my job on a daily basis. Over the last few years, since completing my EngD I have been involved in a number of different projects within JM but I have also been involved in establishing new collaborations with Universities including. I have also continued to work with people at University of Birmingham, who I established relationships with during my EngD.

Dr Uka Oguh

“ After finishing my EngD, I worked for Johnson Matthey Technology Center in Sonning as a Development Engineer to apply the findings of my Research in mixer-settlers to their solvent extraction processes. The main focus was process optimisation. I recommended smarter mixer-settlers which were used to achieve similar or better phase transfer efficiencies and better phase separation than their current technology. I changed jobs after 10 months to work for ERG (Air Pollution Control) as a Process Engineer. They specialise in the design of gas scrubbing technology for the process industry. I am responsible for the development of innovative process solutions to increase the company's knowledge. Introduction of cost effective process solutions for meeting clients' process requirements and troubleshooting process performance at clients' sites where performance is sub-optimum.

My four year training as a Development Engineer broadened my practical and professional competencies. I was able to demonstrate to my employers the business minded aspect of the program which gave me an edge and an offer of employment. My process development skills were not overlooked as they are very keen to use my skills to optimise their processes. I am also in the process of putting together my application to become a Chartered Engineer.

Dr Guy Hassall

“ I spent the four years of my EngD working with detergents, on both a laboratory and pilot plant scale, giving me experience of working not only in a lab, but also with industrial scale equipment in terms of, planning operations/trials and designing modifications to large complex processes. I got to present my work abroad and internally to management. Over the four years I gained knowledge in many areas of engineering including particle technology and fluid dynamics. This experience became extremely useful while interviewing for jobs towards the end of my studies.

Upon completion of my EngD I joined the energy industry and have been on a major energy company's graduate scheme for the last two years, working in two different locations on a number of different operations and projects. I have found the skills and knowledge I learnt during my EngD, and the fact I spent four years in an industrial environment, have aided me so far in my career.

One major advantage of the EngD is that I can use the experience towards Chartership with the IChemE, something I aim to achieve in the next 12 months. I intend to use examples from my EngD to form a large part of my application. These include presenting and reporting data, handling health, safety and environmental aspects, identifying and solving problems, project management and planning.

Dr Stewart Welch

“ For my Engineering Doctorate I was based at the Rolls-Royce Precision Casting Facility (PCF) in Derby UK. The project itself was looking at ceramic formulations being used for novel manufacturing techniques used to create single crystal jet engine components. During the project I worked as part of a wider team of engineers and researchers based at the Derby site and in California in the US. Day to day, I worked with the project team at Derby, spent time using the research facilities at the University of Birmingham and also had the opportunity for a number of visits to the US site to get involved in experiments, review and plan work.

The project itself involved a mix of laboratory characterisation of the materials being developed and manufacturing trials. The aim was to make links between key material properties and the resulting behaviour of the materials through the process environment, whilst understanding the potential of the technique for full scale manufacturing volumes. During the project a fundamental understanding of the microstructure and how it developed was made and linked to the process route being developed. Critical to me was the ability to work in a high performing multifunctional team where the technology being developed had a clear application. In working for Rolls-Royce I saw the impact of the work I and the team did and how this could shape the future direction of the company. An exciting position to be in.

Upon finishing my EngD, I worked as a Rolls-Royce Research Fellow based at the University of Birmingham continuing my doctoral research. In 2010 I joined Rolls-Royce as a Capability Lead. In this role I am responsible for the development and delivery of the technology strategy around key manufacturing processes. The EngD scheme gave me a real opportunity to build a career in research, the grounding obtained in research techniques alongside the exposure to a business environment which allowed me to experience the management and delivery of a research program was critical. I highly recommend the EngD scheme.

Dr Kylee Goode



What I am doing now

Since January 2012 I have been working as a paint engineer at Toyota, based in Burnaston, Derby. Before this I worked for Heineken following on from my EngD implementing my findings and leading feasibility projects to add value to cider by-products.

What I did on the EngD

My EngD was part of a large collaboration project called ZEAL designed to optimise industrial cleaning methods by determining relationships between cleaning parameters for different material at various length scales. During my EngD I was based between the John Smith's brewery in Tadcaster, Yorkshire and the University. I focused on optimising yeast and caramel cleaning.

What I thought of the EngD

My opinion of the EngD is very positive on the whole. The scheme was a great way for me to transition from Biochemistry to Engineering and obtain a valuable qualification in the process. I have met some great people and invaluable industrial experience I am sure helped me get to where I am now.

Dr Brian Armstrong



Undertaking a full time postgraduate course is a big step for someone who (was) in their 40's at the start of his programme. As with many things advanced age has its advantages and disadvantages. However, I can say that my experiences were entirely positive, from the initial interview process through to the graduation.

The EngD programme gave me the best of both worlds, working at the university using cutting edge measurement and analysis techniques to more practical and immediate problem solving with my sponsor company, GEA Pharma Systems. I can absolutely recommend it to anyone.

I currently work for Freeman Technology as their Head of Laboratory whom I joined straight after finishing my EngD. Freeman manufacture a universal powder tester which I utilised during my studies and allowed me significant insights into the powder/processing relationships I was investigating. Although I didn't join my sponsoring company when I completed my course, we still work together as GEA have purchased a Freeman Powder Rheometer and we are currently in the process of expanding on the relationships developed during my EngD studies.

Dr John Askins

John's EngD Project was sponsored by Rolls Royce, working on the Performance and Supply of Lubrication Oils in Modern Gas Turbines. He still works for Rolls Royce in the same area.

Ben Blackham

Ben carried out his EngD under the supervision of Prof Stuart Blackburn and was sponsored by Sandvik to work on the extrusion of Tungsten Carbide ceramics. He now works for his sponsor at their Coventry site.

Dr Joseph Bottomley

Joseph was supported by Dupont Teijin Films where he utilised an Atomic Force Microscope to Analyse Barrier Defects. He is currently applying for positions in the South West UK.

Dr Helen Brannon

Helen's project involved the development of a novel adhesion promoter for polypropylene car bumpers and was supported by BASF in Germany and supervised by Dr Phil Cox and Prof Jon Preece (School of Chemistry). She now works for Kratos in Manchester.

Dr Pamela Cole

Pam's research project was sponsored by GSK investigating Industrial Cleaning of Toothpaste. She now works for Unilever in Leeds.

Dr Jason Dawes

Jason's project was sponsored by Bristol Myers Squibb on the roller compaction of pharmaceutical excipients and supervised by Dr's Richard Greenwood and Phillip Robbins. He is now employed at the Manufacturing Technology Centre in Coventry.

Dr Peter Edmondson

Peter's Project was sponsored by Cadbury (Bournville) and investigated Flavour Development in Chocolate Manufacture. He now runs a Kraft Chocolate Plant in Johannesburg, South Africa.

Dr David Garrec

David was sponsored by Cargill to investigate fluid gels and hydrocolloid tribology under the supervision of Prof Norton. He now works for Mars in Leeds.

Dr Rebecca Godridge

Rebecca's Project was sponsored by P&G in Newcastle, working on the Stability of Laundry Detergents. She now works for Rolls Royce in Derby.

Dr Steven Hall

Steven worked with Unilever Port Sunlight and Prof Pacek on the scale up of emulsification of in line rotor –stator devices. He now works for Unilever but in Rotterdam.

Dr John Henry

John's Project on the Manufacture of Food Nanoemulsions was supported by Unilever (Colworth). After completing a Post Doc Research position at the University of Loughborough he now works as a Lecturer at Tresham College of Further and Higher Education.

Dr Paul Jones

Paul now works for a Software House in Poole, Dorset, building on the skills that he learned whilst carrying out his doctorate with Imerys.

Dr Yao Kanga

Yao's Project on the Controlled Release of Biocides from Minerals was sponsored by Imerys. He is currently working in a School in Watford.

Dr Stephen Mee

Stephen was sponsored by Imerys to work on the Synthesis of Low Density Hollow Spheres. He now works as a Senior Scientist for a Materials Consultancy Firm in Edinburgh.

Dr Aleksandra Pawlik

Aleks was sponsored by Unilever (Colworth) and investigated Duplex Emulsions. She is currently employed as a Post Doctoral Researcher in Professor Norton's Food Microstructure Group.

Dr Dolapo Shobanjo

Dolapo was sponsored by Rolls Royce to carry out a fundamental study on the Waxes used in Investment Casting. She now works for Shell in London.

Dr Matthew Slinn

Matthew's Project on improvements to the Biodiesel Process was sponsored by Green Biodiesel. On completion of his Thesis he went to work for Tetronics in Swindon. After working there for two years he moved to Sellafield Ltd. at Risley.

Matthew Spencer

Matthew's EngD project was based on studying the lubrication of jet engines alongside Rolls- Royce and was supervised by Prof Simmons and Dr Greenwood. He now works with his industrial sponsor in Derby.

Dr Luke Tarrant

Luke's EngD project was sponsored by Rolls Royce on the Development of Ceramic Mould Materials for Investment Castings. He continues working for Rolls Royce putting into practice the science he learned from his Doctoral Thesis.

Dr Ajay Thakaran

Unilever (Colworth) sponsored Ajay's thesis on a Chemical Engineering Model of the GI Tract. On completion of his Thesis he initially worked for Invista but has recently started with Johnson Matthey.

Dr Sam Tulloch

Sam Tulloch graduated in 2011 and is currently employed by Rolls Royce, who were the sponsoring company for his EngD.

Dr Sam Wilkinson

Sam's studied the reaction kinetics of formulated industrial catalysts with Johnson Matthey and was supervised by Prof Simmons. He has continued working with Johnson Matthey on Teeside.

Dr Paul Wilson

Paul's EngD project was sponsored by Ross Ceramics (A division of Rolls Royce) working on the Formulation of Silica Based Ceramic Core Materials for Investment Casting. He is now permanently employed by Rolls Royce.

Dr Gemma Winstone

Gemma's EngD was sponsored by Johnson Matthey on the Tin Screw Extrusion on Pastes. She now works for Portasilo in York, where she heads a Powder Handling Laboratory.

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