



Women in Brunel Engineering and Computing Mentoring Newsletter



In this Issue

Celebrating our achievements [p2](#)

Industry encouraging talent [p4](#)

International Women in Engineering [p6](#)

New FaCE Programme [p9](#)

Industry visits [p10](#)

Events timeline [p12](#)

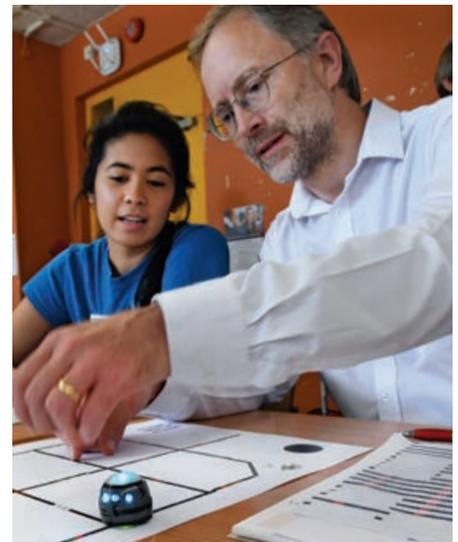


Celebrating our achievements

At the end of May we were delighted to welcome mentors and mentees to celebrate the end of the mentoring programme.

Prof Stefaan Simons, Dean of the College of Engineering, Design and Physical Sciences, confirmed that the programme goes from strength to strength and then took the time to thank everyone involved – students, mentors and the companies. All participants were able to take a step back and reflect on their achievements and relationships formed as well giving valuable feedback about the programme and the processes.

Competitive as ever, the mentors and mentees then took part in a Robotic challenge delivered by our award winning team of eight STEM Ambassadors. Interestingly the competition seemed most fierce between colleagues from the same company – the overall winner was.....Instron. Lots of fun and laughter and thank you to Lesley Warren and her team.



Successes this year

- 105 mentors volunteering from 49 different companies
- 87 female students successfully mentored - increase of 33% across 73 courses - ranging from second year to Masters' level
- 26 bespoke events, funded by Brunel, were offered to mentees to develop their skills and give them the chance to network with industry
- 1000+ hours of advice and guidance and support for our students

New for 2017/18

1. Offering mentoring to 10 students studying Mathematics
2. Experienced mentors to buddy new mentors
3. We are partnering with Silver Pebble Ltd, an approved centre of the Chartered Management Institute to offer mentors the opportunity to achieve a recognised qualification in coaching and mentoring

Students - take this advice from the mentees

Don't be afraid to ask questions

Be yourself

Attend as many events as possible

Be open, the mentors are here to help you and they can even learn from you

Take advantage of the opportunity from the start

Keep in contact with your mentor throughout the year, drop them an email to see how they're doing

Have more face to face meetings

Contact my mentor more frequently

Set up a two week update

Be better at following up from networking events

Best moments...

Mentee

"Knowing that someone has chosen to invest their time in my development."

"Discovering that I actually had strengths, where before I only thought of my weaknesses."

"The happiness on my mentor's face when she got to know I secured an internship."

"Seeing positive results after using advice given by my mentor."

Mentor

"Getting to know her - she is a fantastic student and ambassador for women in engineering."

"Understanding the challenges students face in a world that is so competitive and demanding. It was a pleasure to see the drive and energy that young people have."

"The reward of seeing my mentee's confidence grow."

"I enjoyed the trainings and the Strength Finding workshops where I could learn new skills."

Industry

"Providing support to someone in their early career, hopefully helping them along the way. I feel, both personally and professionally, that it is important to give something back to the professions, and that this point in a mentee's career is one of the key steps to support."

Sarah Templey,
Amec Foster-Wheeler

My journey to placement

Nicole Baboolal-Taylor, studying Computer Science BSc, and mentored by Martin Simmons, Managing Director of Marsworth Computing Ltd



Eli Lilly visited the University in October 2016. I applied for a placement in the same week as my interest in medicine, helping people and technology made this a perfect fit.

The first round of interviews was held on campus in the placement office, which added an extra bit of well-needed comfort to a tense situation. The second interview was a great experience at Eli Lilly's Windelsham offices. I met other interviewees and students currently on placement whilst networking with a few of their senior employees and getting a tour.

By the end of December I had an official letter congratulating me on my success along with other useful information such as my start date, role and where I will be based when working.

During this process Mo Rahman from Brunel's Professional Development Centre was extremely helpful. From helping me write and correct my CV, to practicing questions for the interviews. WiBEC Mentoring was also a great help. My confidence has increased with each event and the support from my mentor has helped me significantly, not just for placement application, but for general worries throughout the year such as projects and exams stress.

After December, WiBEC become a place where I could offer advice to other students looking for placements

and hear testimonials and get advice from those who were in their final year. There is fantastic support especially from Giselle who I was happily surprised to see at my familiarisation day at Eli Lilly. The positivity and support that was given on that day by the Eli Lilly team made the whole experience so rewarding.

WiBEC prepared me well for my familiarisation day which consisted of a selection of a few team building games, presentations on the company, a mini fair providing information on social life and living arrangements and a chance to go to your department to meet your colleagues. The part that worried me most was the team building games. However, they turned out to be very enjoyable, they helped break the ice and made the day more relaxed, especially since I had five other successful Brunel students attending with me.

The most enjoyable and informative part of the day was meeting the people I will be working with and connecting with the student whom I will be replacing. I was also given a lot of information about my role as a Business Analyst. My focus will be liaising with expert IT groups and external service providers to deliver with quality, speed and value and ensuring documented processes are in place for all activities to ensure that an environment of quality is maintained. I will also carry out other projects which will be announced once I start my placement.

I am extremely excited for this opportunity; I was reluctant to do a

placement however, I am glad I decided to pursue one. There are so many benefits to doing a placement year, one of which is learning your role in a real working environment. Completing a placement can sometimes lead directly to employment with the same or similar employer following graduation. It can be "a foot in the door" that could lead to a temporary or permanent contract. I would highly urge any student to take a placement year.

Danielle Urie, IT Business Integrator and UK IT Student Programme Leader at Eli Lilly

Hearing Nicole's experience of her interactions with Eli Lilly throughout the recruitment process is great and I am glad to hear she found it enjoyable. We really do try our utmost best to make it a seamless and stress-free process!

Our UK IT Student Programme at Eli Lilly has been running for over 35 years and we continue to get very talented individuals from Brunel so I am excited to meet this next intake of students! Over the next year, we will continue to partner with the University by offering a number of our IT employees as mentors for the WiBEC Mentoring Programme. We see huge value in developing the next generation of talent and the reward of seeing students grow in confidence is truly invaluable.

Brunel Engineers Showcase 2017

The projects exhibited in the Showcase demonstrate the talent and ability of students to generate ideas and concepts, and apply design principles to drive innovation. Achievement awards are sponsored by our industry partners. Clancy Consulting Ltd, Frazer-Nash Consultancy, and Nita Rabadia support the WiBEC mentoring programme and have also sponsored new awards this year.

Frazer-Nash's Mark Dorn presents STEM outreach prize

Frazer-Nash Consultancy have supported the Mentoring programme for 3 consecutive years and this year invited Brunel students who had acted as STEM role models to apply for their award. They had to show how they had inspired, motivated and helped young people to understand STEM subjects. The prize was awarded to **Mohammed Khan**, BEng, Department of Electronics and Computer Engineering.



Business Director, Mark Dorn said: *"I was delighted to present this well-deserved prize to Mohammed. As a leading systems and engineering consultancy, Frazer-Nash's people make a real difference to our clients in the power, aerospace, transport, and defence sectors, and we're committed to inspiring young people to take up a career in science, technology, engineering or maths related disciplines. In the future, we know that these students, and the young people they have inspired to understand and participate in STEM subjects, will help make a real difference too."*

Compressed air locomotive shines at Brunel Engineers and the Railway Challenge



A locomotive powered by compressed air caught the judges' eyes at Brunel Engineers, and at the sixth annual IMechE Railway Challenge. Six students from across three of our Engineering disciplines participated in the unique compressed air-propulsion system build of the railway locomotive. One of the six is a mentee on the programme, **Nuraiman Syafiqah Binti Musa**, MEng Electronic and Electrical Engineering, mentored by Saif Ul Islam Malik, Hanovia Ltd. The team won the TWI Prize at Brunel Engineers and the most Innovative Compressed Air Design at IMechE Railway Challenge.

Clancy Consulting Ltd sponsor 3 awards

Again a long term supporter of WiBEC Mentoring, Clancy Consulting Ltd presented the Clancy Consulting Award for Best Civil Engineering Project to five students: **Alganit Tabir**, **Harmeet Saini**, **Harshal Varsani**, **Kirsty Greener** (mentee on the WiBEC programme last year) and **Sobhan Khandani**. Masters Best Dissertation and Best Overall Student will be awarded at the November Award Body.



Nita Rabadia, Director of Specification & Technical Assurance and Brunel alumna, awarding The Nita Rabadia Female Engineer Award for the most innovative project by a female engineer to **Daniela Rowe**, BEng Electronic and Computer Engineering.



In February 2017, **Joanna Joss**, one of our final year Business Computing students, won the Worshipful Company of Information Technologists Gold Award. Judges particularly looked for evidence of one or more of the following characteristics: academic excellence/overcoming adversity/entrepreneurial skills/contribution to charity or community. Jo won the top award with one other student, from the University of Oxford. Jo has been mentored this year by Miles Mulholland of IBM UK and commences her graduate role at Eli Lilly this summer.



Crizel Castro, Computer Science BSc, mentored by Andrew Edney, Intragen Ltd, receiving the prize for Best Performance Grade in Work Experience Module 2015/16



INTERNATIONAL WOMEN In ENGINEERING DAY 23 June 2017

Brunel University London in partnership the Environment Agency also ran a webinar on International Women in Engineering Day on the following topic: **'Only 9% of girls go into engineering careers, despite it being a hugely important career which has the potential to change the world. How can we make engineering a more attractive career option for girls?'** The webinar featured speakers from industry such as Louise Hall, named as one of the Top 50 female engineers in The Times list and Dr Carola Koenig, Course Director for Brunel's new Flood and Coastal Engineering programme.

WiBEC and engineering students from the Heathrow Aviation Engineering UTC joined Morgan Sindall's International Women in Engineering Day (INWED17) celebrations at Heathrow on the 23 June 2017. When we arrived at Starlight Point we were met by female engineers from Morgan Sindall, Turner & Townsend, Heathrow Airport and Ferrovial Agroman.

Caroline Sheridan, Heathrow's Development Director kicked off the event by describing her career journey and highlighted the many varied opportunities that are available if you have vision, are hard working and focussed. She has proudly been able to show her children the buildings, bridges and airport aprons that she had designed and built - when she was



"on the tools". Engineering is such a tangible industry. Caroline also impressed on the students that it is possible for women to achieve professionally and also manage a family and a personal life.

After an unplanned fire alarm and a detailed health and safety briefing by Giorgios, Site Engineer for Morgan Sindall, we were then kitted out in

PPE so that we could visit Heathrow Airport's Eastern Balancing Reservoir project. Giorgios led the tour and explained in detail the complications of running a site where old and new technologies run side by side as improvements are made. At any one time there are 40 operatives and engineers on site with three separate entrances - a logistical complication.

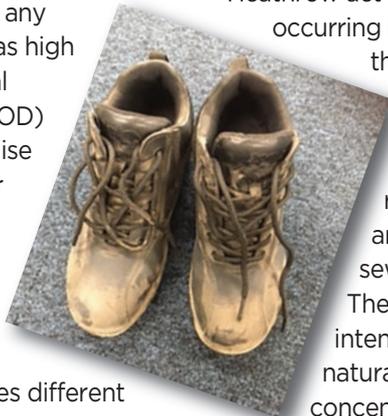




Within the perimeter fence, Heathrow Airport covers an area of 1047 hectares, which includes a large proportion of impermeable areas. These are the concrete runways and taxiways that are used by aircraft, building roofs and other structures that are important to the operation of any hub airport. Heathrow has an extensive drainage network to capture and treat any rainfall runoff that has high levels of Biochemical Oxygen Demand (BOD) and therefore minimise any impact on water quality. This infrastructure is collectively referred to as the Pollution Control System and combines different water management techniques and

technologies to treat airport runoff with higher levels of BOD. The Heathrow pollution control system is made up of three major catchments including the Eastern Catchment Balancing Reservoir discharging rainfall runoff from the Pollution Control System into the River Crane.

The de-icing products in use at Heathrow act as food for naturally occurring bacterial, which break them down using oxygen in the water. This can result in low oxygen levels in the receiving water body and contribute to sewage fungus growths. The improvements are intended to take these natural processes and concentrate them in a treatment facility at Eastern



Balancing Reservoir. Improvements in infrastructure designed to trap de-icer at source will help to manage peak loads but will not replace the need for 'end of pipe' technology.

The proposed infrastructure improvements have been developed over several years to try and balance the complicated relationships between airport operations, the function of the existing pollution control infrastructure and weather conditions with providing the best environmental outcome for the River Crane and the local environment.

After our tour we had some informal networking conversations with the professional female engineers. Students realised that it is important to research many companies and engineering roles, sometimes outside of their specific course to find the right fit for them.



Left to right Viji Uthayakumar, Khadijah Mohammad, Harshitha Umashankar, Juliana Byzyka, Chonticha Praditsakul, Jessica Nguyen, Karina Mudjahid



A Mentor's story

Felicity Fashade



Felicity Fashade is Head of Engineering Performance within BAE Systems Maritime Naval Ships business unit, where she works to build and sustain a high-performance culture across engineering operations. She graduated with a degree in Electrical and Electronic Engineering from Brunel University London in 1997 and completed an MBA (Masters in Business Administration) in 2005. She has 20 years experience within engineering, working within defence, systems and software engineering before moving into managerial roles. Felicity has also given guest lectures at the University of Cambridge, Bristol Science Museum and the Royal Aeronautical Society and is just completing her first year as a WiBEC Mentor.

It was Felicity's Physics teacher at secondary school that inspired her from a young age. She tells us that his passion for space exploration sparked off her enthusiasm for science and technology. She was one of the team members who participated in the radio communications with Helen Sharman, our first British astronaut whilst she was in space. Her passion for space, science and technology grew apace after that. Felicity says "I grew up in Hong Kong, where engineering was a prestigious profession, and electronic engineers were among the best paid. After I graduated in the UK, I spent a lot of time trying

to persuade people that it's not all hard hats and spanners. But even now when I speak to students and pupils I find there's still an old-fashioned view of engineering, and that's disappointing, but it makes me more determined to change it.

I joined the defence sector at an exciting time – the company I worked for, MBDA, had developed a long-range air-launched fire-and-forget missile, Storm Shadow, and we were creating guidance algorithms to guide the missiles from launch to target with great accuracy.

Being a systems engineer is strategic. You have to sit back, consider your clients' views and harness people's expertise. You need to communicate the impact of a project clearly and clarify a customer's requirements.

We all hear about the need for good communication but this can be harder than you think in large teams. I tell my children that even if you are brilliant, you can't always go it alone. Recently I was on board the Queen Elizabeth-class carrier (the Navy's flagship warship being built in Scotland) where some 2,500 people were working on board each day round the clock. The level of coordination and cooperation that is needed among different teams is immense. The best engineers are those who can influence people as well as approach a problem systematically. I've undertaken so many different challenges over my career. I've made some demanding transitions from one specialism to another – from systems to software engineering and a major IT project, and then to ethics and management.

Within the defence sector, engineering is a fine springboard to new roles, and to management. I was lucky to do my MBA relatively early. It gave me tools and methodology to apply more widely in business. All the experiences you get as an engineer – problem solving, team work, understanding clients – these develop your essential leadership skills.

Being a mentor is a very rewarding experience. Ability to share our own knowledge and experiences with others is vital to enable individuals to grow and make those very important life-changing decisions. Since I became a chartered engineer in 2004, I had the pleasure to mentor many internal and external engineers at different stages of their careers. What has been interesting for me is that every mentor and mentee relationship is unique and I have learnt to adapt to meet their needs and support them."



New programme to help the Environment Agency FaCE the future

The UK faces huge challenges around the development, attraction and retention of skilled engineers, and this poses a considerable threat to many industries, including civil engineering and flood risk management. Brunel University London, the Environment Agency and HR Wallingford have teamed up to deliver innovative higher education courses that will train and inspire the next generation of flood and coastal engineers.

Flooding can have a devastating impact on people, communities and the environment. To help address this challenge, for the past 14 years the Environment Agency has been investing in higher education to develop the next generation of flood engineers.

Brunel University London and HR Wallingford are delivering a new Flood and Coastal Engineering (FaCE) programme for the Environment Agency. Working in partnership, we've developed a new:

- Foundation Degree in Flood and Coastal Engineering which will meet the educational requirements to achieve Engineering Technician;
- BSc (top up) in Flood and Coastal Engineering which will meet the educational requirements to achieve Incorporated Engineer; and,
- MSc in Flood and Coastal Engineering which will meet the educational requirements to achieve Chartered Engineer.

The new programme is practically based with a strong emphasis on placements. The course is innovative, combining flood and coastal engineering subject areas taught by many of the people responsible for developing industry standard guidance and many of the methodologies used in practice.

Graduates of the Foundation Degree will then get the opportunity to gain a full BSc, and attend University (and HR Wallingford) on a two-year block week release scheme.

An MSc qualification has been designed specifically for existing Environment Agency and Risk Management Authority staff, allowing them to return to university on a two-year block week release scheme.

For more information on the Flood and Coastal Engineering courses, please see: www.brunel.ac.uk/face



“Surprisingly it doesn’t matter which course we’re graduating from, as long as there is passion, then you can make things work.”

Between October and August - 26 bespoke events were offered to student mentees to develop their skills and give them the chance to network with industry.

Coca Cola European Partners – Edmonton London

This trip was made possible thanks to Innovia, working with our alumna, Margherita Barlotti, Upstream Production Team Leader at CCEP, who graduated with an MSc in Engineering Management in 2015 and is also an active supporter of the Women in Brunel Engineering and Computing Mentoring programme.

We were given a tour into their amazing facilities and discussed current issues from their sustainability plan to health to business strategy surrounding CCEP’s operations. One of the core themes of discussion included the enterprise’s move towards renewable solutions to reduce the environmental impact of their activities whilst preserving the quality of their production. CCEP’s factory in Wakefield harness 15% of the required electricity from a solar farm as part of the business’s major switch to powering 100% of its energy requirements from renewable sources by 2020.



Royal School of Military Engineers

“We certainly appreciated the calibre and level of presenters – we were very lucky indeed to meet the Brigadier.”

“We were particularly interested in the water salination equipment. Indeed some of us had some ideas of how to enhance the equipment!”



BAE Systems New Malden
@BrunelWiBEC @Bruneluni
Thank you for making it happen! It was an invaluable & fascinating experience. SI & CMS presentations were my fave!



BAE Systems Portsmouth – Royal Navy HQ

“The visit was insightful. The ship used composite materials, changes being made include three engines to be reduced to two and introduction of modern technology.”

“Delicious lunch and interesting narration of the history of the dockyard.”

“5/5 would recommend to others and want to go again! The whole visit was full of knowledge about ships and the setting was wonderful. It was brilliant!”

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PROFESSIONAL DEVELOPMENT FOR PROFESSIONAL PEOPLE



MINDFUL pathway finding your way

Introduction to Mindfulness:
An experiential workshop - Monday 4 December 2017

Summary

An experiential introduction to the principles of Mindfulness to allow you to learn and immerse yourself in a selection of practices and tips to take away to help you prepare for forthcoming exams and other challenges you may face whilst studying.

Workshop details

The workshop will introduce Mindfulness by explaining the neuro science of the practice as well as allowing the group to experience a number of different group exercises throughout the session.

Tools for the future

Tips and guidance to take away and follow up email with a guided meditation and recommended reading.

20 spaces available - to reserve a space
www.brunel.ac.uk/women-in-brunel-engineering-and-computing

You can't stop the waves but you can learn to surf

- Jon Kabat-Zinn



Ruth Farenga is founder and Mindfulness teacher at Mindful Pathway. She is also a self-employed workshop facilitator and project manager specialising in education, gender diversity and mindfulness theory and practice. She is a long-term contractor for the WISE Campaign (Women in Science, Engineering and Technology).



www.mindfulpathway.co.uk

WiBEC Mentoring Programme of Events 2017/2018

Registration for all events can be found on our webpage:
www.brunel.ac.uk/women-in-brunel-engineering-and-computing



Contact Giselle Hayward, Women in Engineering Mentoring Manager if you would like to be involved in the programme
giselle.hayward@brunel.ac.uk
 @BrunelWiBEC

Other events will include

- 100 Days at Hitachi Rail
- Heathrow Airport Site visit
- Informal socials