Welcome!
A warm welcome to this, the first newsletter from the EECE to all of our industrial partners. The aim of this bimonthly publication is to keep you informed about developments within the School – new research, new and existing staff members and their research interests and the work and future aspirations of our students. Please read through these two pages and see some of the exciting developments coming up in the next few months where we would value your support – be it for the Lego League competitions or to host visits for our undergraduate students. Our contact details are on the bottom of the second page and we look forward to hearing from you!

Bob Stone & Carolyn Toney

All Change at the Top ...
EECE has a new Head of School. Dr Peter Gardner graduated with a First Class Physics Degree from the University of Oxford in 1980 following which he gained eight years of industrial experience in active components R&D for Ferranti International. In 1989 he returned to academic research, initially at UMIST where he obtained a PhD in 1992. He joined EECE in 1994 as a lecturer, where he has built up a range of research activities in the broad area of microwave engineering, which he also teaches along with communications systems engineering at both undergraduate and postgraduate levels. Peter also regularly delivers courses in microwave design at Oxford University’s CPD Centre.

Student Engineering Society
We’re looking to set up a new Engineering Society for students within EECE over the coming academic year. The aim is for the Society to provide opportunities for employers to work with students in an informal setting and, by means of short talks, case studies, demonstrations and so on, to show them where success in their academic career might take them. Activities such as product testing and demos, usability testing and training are just some of the things we would encourage our industrial partners to work with us to organise. Of course, we’ll need to make arrangements to ensure IPR is not compromised and the appropriate risk assessments are in place. If this is something you’d be interested in please let us know: we are keen to hear your ideas for the activities you would like to run with students. The students will be asked to sign up for the activities, to ensure their commitment to the Society.

Many thanks to those of you who completed the Industrial Liaison participation form distributed at our summer meeting. These forms have given us a valuable insight on how you might wish to work with us in the future. We are working through these forms and will be in touch with you individually to take things forward. If you haven’t yet returned this form, you are still more than welcome to do so.

New Year, Great Start!
Some readers will already be aware of the excellent news that Birmingham has been named University of the Year 2014 in The Times and The Sunday Times Good University Guide. The University has risen eight places overall this year, coming 16th nationally and in the top ten, up 21 places, for graduate prospects, with 60.8% of students going on to professional work or graduate study. This achievement builds on the University’s recent strong league table performances in the QS World Rankings, Times Higher Education Student Experience Survey 2013, The Guardian University Guide 2014 and The Complete University Guide for 2014. Closer to home, our School was also delighted to hear that, in The Times subject-based league tables, we had moved up the ranks, from 26th place last year to 12th this year.

First Lego League 2014
On 07 January 2014 EECE will play host to a regional tournament of the prestigious international FIRST® LEGO® League (FLL) UK Competition. Briefly, FLL is a robotics programme designed to get children between the ages of 9 and 16 excited about science and technology and to equip them with key skills for future employment opportunities. The 2014 Challenge, coordinated by the FFL’s UK operational partner, the Institute of Engineering and Technology (IET), is called Nature’s Fury and aims to encourage children from local schools to explore features of natural disasters and understand the impact of storms, quakes and tsunamis on the lives of humans. During Nature’s Fury, teams will build, test, and program autonomous robots to solve a set of missions using LEGO MINDSTORMS® kits (for more information, please visit the IET’s website: http://firstlegoleague.theiet.org/).

A total of 12 teams have registered for the event and we are now in the process of recruiting staff and students to help out on the day of the tournament. If you would like to take part on the day, we would welcome your involvement so please get in touch and we can provide you with more information about how you can help. Alternatively, if you’re not available on 07 January but would like to contribute in some way, we do need 9 trophies to hand out to winners of various elements of the competition. If you could sponsor one or more of these trophies we’d be delighted to present them on your behalf and would be happy to promote your company with posters or flyers during the day too.
**Industry Support**

Members of the industrial liaison group have been helping staff in the School prepare for a sixth form Campus Masterclass to be delivered in November by EEEC’s Dr Tim Jackson and his trusty electric guitar! Entitled *Catching Waves*, the Masterclass aims to demonstrate the properties of waves and will benefit from live signal analysis software being developed by National Instruments’ Justin Powell and student Chris Hicks. Chris is currently in the final year of his BEng degree; he undertook a placement with National Instruments last year and this year he will be developing educational collaborations with the School.

**Gravity – The Forgotten Scientific Frontier?**

Late in 2014, the BBC will air a new documentary on Stonehenge. Working away from the limelight in the background of the picture below are physicists and engineers measuring the gravity values on a grid of points over a large pit on the Cursus at Stonehenge. Such measurements are very slow, but have the advantage that gravity is not shielded by other materials – unlike all the other geophysical measurement techniques. EECE is currently developing the Bayesian inversion techniques required to transform the blurred images obtained during field measurements into the depth and position parameters required by underground surveyors.

**Staff Research Profile**

A previous Head of the School of EECE, **Professor Martin Russell** conducted research into automatic speech recognition, speech and language technology at the UK Speech Research Unit of the Royal Signals and Radar Establishment (RSRE) between 1980 and 1998 (RSRE later became part of DERA and then QinetiQ). He joined the University of Birmingham in 1998. Speech continues to be the main focus of his work, with projects addressing the fundamentals of acoustic speech pattern modelling, regional accents, speech technologies for children and educational applications.

However, a significant part of his work now includes the transfer of ideas and methods from speech and language technology to other areas, ranging from the recognition of birdsong to cognitive rehabilitation for stroke patients – a topic reported in The Guardian recently by Martin’s son Patrick, winner of the 2013 Wellcome Trust Science Writing Prize. Funding for Martin’s current projects comes from the UK Government, the EU, and Disney Research.

**EECE Soc**

Our School’s student society is keen to set up visits for some of its members to companies within approximately one hour’s drive from Birmingham, in order to help them plan their careers and understand the context of their studies. The students already attend evening lectures at the HQ of the IET in Birmingham city centre but would like to see more of the sharp end of graduate engineering. Such visits would also allow employers to meet potential graduate recruits. If you are interested in hosting such a visit, please let us know with an indication of how many visitors you could accommodate.

**Student Project Profile**

Chris Blibi is one of our recent graduates who, during his time with us, developed a flair for building and flight-testing small unmanned aerial vehicles. Sponsored by the School over the summer, Chris equipped his latest hexacopter system with a new head-controlled stereoscopic TV system and an additional gimbal-stabilised high-definition camera. Test flights with these new remote viewing systems over Dartmoor and a coastal Victorian Fort in Cornwall proved highly successful and we look forward to taking the project further with new students over the coming year. Chris graduated in 2013 with an MEng degree in Computer Systems Engineering. His Final Year Project, which involved developing a unique Augmented Reality (AR) console design system, underwent trials hosted by BAE Systems Warton and included, as one of the participants, the company’s Chief Combat Aircraft Test Pilot. BAE Systems is now sponsoring Chris’s PhD studies as part of an industrial Studentship starting in November, during which Chris will look at AR technologies for complex aerospace systems maintenance.

**Maritime Heritage Opportunities for Students**

The National Museum of the Royal Navy has recently announced a new academic partnership with EECE to exploit and develop Virtual and Augmented Reality technologies to support projects in naval heritage, both past and present. The partnership will initially focus on HMS Caroline, the last floating survivor of the Battle of Jutland in World War One, and will provide engineering students with a wide range of challenging simulation and interactive media projects.

If you’d like to follow up any of the articles in this newsletter, or get involved with our activities and those of our students, then we’d be delighted to hear from you. We’d also like to feature short statements of interests and capabilities from our industrial partners or any news you think may interest our staff and students. Please contact us via these e-mail addresses:

Prof. Bob Stone: r.j.stone@bham.ac.uk or
Carolyn Toney: c.toney@bham.ac.uk