

CLINICAL ENGINEERING

EXPERIENCES OF A RECENT CENG GRADUATE

Marc Rea (Imperial College Healthcare NHS Trust) has written about his recent CEng accreditation experience in the hope of inspiring others to do it



If you are working or training in a field related to engineering you may be thinking about registering for accreditation as a Chartered Engineer (CEng). As a recent graduate of the scheme and former slogan writer for Nike my advice to you would be – *just do it!*

Achieving CEng accreditation is a rewarding process that does not require massive amounts of extra paperwork and depending on your Part II specialty may be largely incorporated as part of your training. To encourage your participation in the scheme I have written up a recount of my CEng experience which resulted in me finally passing my viva in June 2010.

MY STORY

Even while studying for a physics degree, I always had a preference for the more practical modules such as electronics, optics, computing and basically anything based in the lab in which we got to build something practical and test its performance. Graduation and employment as an electronic engineer followed and I quickly learned that working in a semiconductor fabrication plant was just as boring as working in a biscuit factory. I knew I liked a bit more chocolate on my biscuit and so took

another dunk and eventually got into medical physics.

During my Part I training at Sunderland and Newcastle I stood my ground and insisted that despite the better job opportunities, I did not want to do a radiotherapy placement, and instead took my chances with three ‘engineering’ subjects: electronic instrumentation, computing and bioengineering. I was then made aware of the possibility of CEng pre-registration and my training supervisor encouraged me to do this, and although the 5 years of required experience seemed a long way off I knew I had found a job I wanted to do and would hopefully stick out.

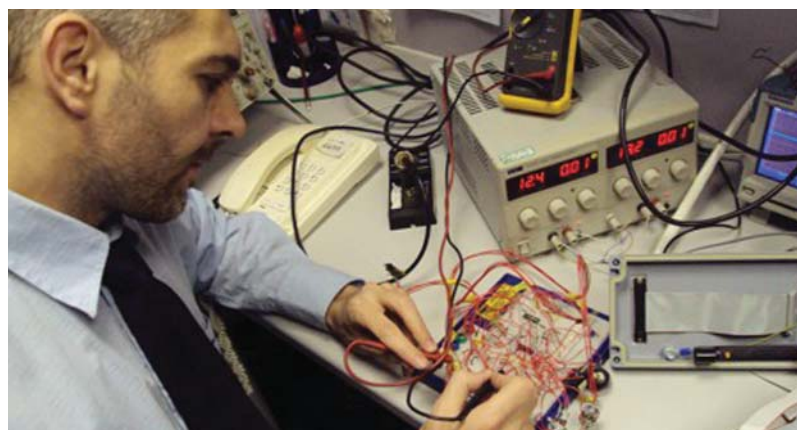
For my Part II training I took a job which was advertised as MRI Physicist/Engineer, and not knowing a whole lot about MRI meant that initially I had to work harder to get up to speed, not only with the principles of MR imaging but also the various technologies which made it all possible. This was a dream job for me as I soon learned that I would need all of my previously acquired experience and skills in electronics, physics, computing and even bioengineering! At this point I thought I would have a good chance of completing the CEng registration criteria, and was

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lucky enough to have a boss and a number of colleagues who were also CEng accredited. I contacted IPREM and began to think about what would be required in addition to completing Part II. I was given a mentor who set up a meeting and we discussed my potential route to accreditation. The good news was that it seemed that around 80 per cent of the requirements would be covered by my Part II work!

After 2-and-a-half years I completed my ACS training and became a registered Clinical Scientist; I believe I was the first candidate to pass the ACS exam under the dual modalities of non-ionising radiation (MRI) and clinical engineering. The subsequent party was long and late, yet once the hangover began to fade my thoughts turned back to CEng. Could I complete the training?

Another meeting was held to attempt to clarify which of the CEng competencies I had covered and which I needed to work on. We found that there was still around 30 per cent of the requirements that I needed to work on, and I made a plan with my boss that would allow me to attain these missing parts in the next year. It appeared that this may present a stumbling block since the areas of attainment which were



not covered by my Part II training included management of budgets and staff, acquisition of equipment, training supervision and teaching experience.

I found that my boss was more than helpful in identifying where I could gain the required experience and supporting my development. I also looked into how the application was to be submitted and found that with the 'standard' application route I had followed I would need to write an Initial Professional Development (IPD) report of just 2,000 words. There was more good news which was that my ACS portfolio, which was already written, could be submitted as additional evidence for the CEng exam.

THE EXAM

So finally after another year I decided to write up my IPD which was submitted in April 2010. The exam was held at the Institute of Physics in London and I was quite nervous (more so than for my PhD viva), since I was not 100 per cent confident that I had demonstrated the required level in all of the management competencies, but as is always best in interviews I was simply honest about my experience and allowed the adjudicators to

▲ **TOP LEFT.** A volunteer testing of our MR-compatible prostate biopsy robot system (oof!!).

▲ **TOP RIGHT.** A unit containing three CCD arrays for a 3D optical device tracking in interventional MRI.

▲ **BOTTOM RIGHT.** Testing the configuration of an old patient isolation unit.

decide whether I had fulfilled the requirements, and probably whether my £6 Asda shirt and tie combination looked professional enough!

The exam was fairly intensive and I was asked about my work and how I thought it related to the field of engineering, in terms of both specific projects I had worked on and how as an engineer I would approach problems in general. I was asked to discuss the wider implications of my work, and what being a chartered engineer would actually mean to me, to my colleagues and other engineers across the world. As anyone with a scientific mind who ever sat an English literature or RE exam will probably attest, it is these 'open-ended' questions which can be the most difficult to answer as there is no 'correct' response. However, looking back now, I feel that the panel's interviewing process is as much based around assessment of the person as the professional experience – ensuring that those who receive CEng accreditation continue to be safe, honest and capable engineers.

WHAT HAS HAPPENED SINCE

Since gaining CEng accreditation I have remained in the same job, and

it might well be a cause (or a symptom?) of my rapidly expanding collection of titanium-coloured hair that I am gradually taking more responsibility for my own work. The plus side is that I can ensure this involves a good mix of clinical support and research activity. Also, what I lose in hair pigmentation I have definitely gained in chest hair! I have worked recently on many exciting projects and have now started my own project to compile MR protocol information from across our trust, and maybe eventually from across the world. Meanwhile I am also busy working closely with colleagues from Imperial College London where we are developing, among other things, the world's first parametrically-amplified MRI coil.

In hindsight (and somewhat predictably), I would say that going through the CEng process has been both a trying and rewarding experience which I hope will continue to be worth the extra £31 a year in IPEM fees (no, really – it is!). I would recommend anyone with a background, a job or even just a professional interest in the field of medical engineering to investigate the possibilities and pre-register for the scheme.

Examples of my recent work are shown in the photos above. ■