

Occasional Address

Royal Exhibition Building, Thursday 12th December 2019, 5pm

Don Hewitt

Doctor of Engineering (honoris causa)

Presiding Chancellor, Presiding Vice Chancellor, Academic Staff, Graduands, families and friends

To the graduands my heartiest congratulations for completing your course and embarking on a career as exciting and rewarding as a professional engineer, with a degree from the University of Melbourne. It is a great honour and pleasure to address you all as graduating engineers.

Engineering, as a profession, has a lot going for it in terms of job satisfaction. We design and make things with analytical and computer tools based on well tested accurate models. We work in teams and as engineering technology evolves, we must continually innovate, learn new things and move on to other promising and exciting fields of engineering.

On the one hand, you and I have much in common, as for the last few years I have been working in a design office in Carlton and interacting with cooperating teams in Texas and California on a Gigabit wireless project. Many of you will be working in a similar engineering environment next year. On the other hand, we are at opposite ends of a professional engineering career. I have the opportunity, in the next few minutes, to reflect on my university and industry life, and hope my messages on engineering strike a chord with you, as you begin your future careers.

Message 1: Continue to upgrade your skills and aim to be innovative problem solvers

Your degree is current now but will soon be overtaken by new developments. You will find, as your career develops, the most important part of your engineering course is that you are trained to think, go back to fundamentals and have the necessary background to solve different innovative engineering tasks. Engineering technology will continue to rapidly evolve – you will need to upgrade your engineering skills and be prepared for a lifetime of self-learning.

For example, if you look at my experiences of self-learning. There were no semiconductor electronics in my engineering course - electronic devices were vacuum tubes. No transistors or integrated circuits. This was my first experience of a disruptive technology, where I needed to retrain myself. Like me, at that time, you also will find it impossible to predict the future – I had no idea the astronomical lowering of cost and size of integrated circuits over time would lead to such productivity gains for the community.

Another major disruption for me was in communication technology. Connections used either copper wires or wireless with high transmission losses, and it was not until 1968 at a workshop in the UK that I heard that very low transmission losses may be possible using glass optical fibres and lasers. This new field opened up a vast range of opportunities for me when one of my research students Rod Tucker returned from Bell Laboratories and started the Photonics Research Laboratory (PRL) in our department. This allowed many of us to participate in his vision of optical transmission, switching and fibre to the home.

Message 2: Be passionate about engineering and try to work with the best people in your organization

You may be asking why on earth am I still working after retiring as a teaching academic? The answer is not just that I enjoy learning new things and need a problem to think about. It gives me an opportunity to help the department interface with industry and perhaps help to advance the range of challenging engineering jobs in Australia.

Since retiring I have been associated with six different industry spin-offs or industry related research programs originating in my department. Recent press articles have stated that university engineering departments in Australia do not place enough emphasis on interacting with industry or that Australia does not design and manufacture innovative products needing an engineer to be involved. This is definitely not the case for our Faculty of Engineering. Academic engineers often have early insights into future industry needs, because they teach and research across a broad range of topics. For instance, a joint NEC–PRL industry grant on optical fibre to the home gave me practical experience to develop a software design tool for hybrid fibre access (HFC) for our PRL spin-off company Virtual Photonics. Our team merged with a Berlin company and the company is still operating successfully. All done years before NBN was started! Another example, project leaders within NICTA had the vision to investigate if CMOS integrated circuits could operate successfully at 60 GHz. This gamble succeeded and a spin-out company Nitro was formed and was later acquired by AMD.

Message 3. Build your networks and keep in touch with the University of Melbourne

Each year the Faculty of Engineering has a very exclusive luncheon. All alumni who graduated 50 years or more are invited. I always enjoy interacting with each new engineering cohort as they become eligible, particularly for the past 8 years as I find I have taught many of them! The accounts they tell me about their varied professional lives often astound me.

Your future engineering challenges will be very different to mine and impossible to predict. The major challenge of greenhouse-reduction will impact all branches of engineering. Engineers must take up this challenge, because if you think about, there is no other profession capable of designing and building the systems required.

I expect all of you will have a great story to tell for your 50 years or more luncheon in 2069! As you build your networks and expand your engineering expertise, make sure you keep in touch with the Faculty of Engineering. The Faculty will also change and have a story to tell. Melbourne Connect, the huge building presently rising on the corner of Swanston & Grattan will be one difference, as the aim is to expand research and innovation opportunities between the Engineering faculty and local industry.

Finally a word to your parents, families and friends who have supported you throughout your course and are celebrating your graduation today. You will be feeling admiration and pleasure today at this graduation ceremony. However, be prepared to be surprised at their achievements as their professional engineering careers unfold. You will continue to be very proud of them!

Thank you all.

Doctor of Engineering *honoris causa* citation

Don Hewitt completed his Bachelor of Science majoring in Physics and Electronics at the University of Melbourne in 1954, after which he travelled to the UK to work in the research laboratories of General Electric. He returned to Australia in 1959, working at Telecom Research Laboratories before accepting a position as Lecturer at the University of Melbourne. He completed a Master of Engineering by Research in 1965 and was promoted to Senior Lecturer in 1966 until he officially retired from the University in December 1995. He has held Honorary positions in the Department of Electrical and Electronic Engineering since that time, and for a decade from 2004-2014 was a researcher in the Victorian node of NICTA.

Throughout his several decades of tenure at the University of Melbourne, Mr Hewitt demonstrated a sustained commitment to teaching. This included teaching a wide variety of subjects in areas related to electromagnetics, communications, networks, antennas and semiconductor electronics. Don was widely regarded as passionate and extremely knowledgeable, inspiring generations of undergraduate students both in lectures and laboratories.

Mr Hewitt's research supervision has also had a great impact on the photonics and electronics community. During his tenure, Mr Hewitt supervised approximately 35 Masters and PhD graduates at the University of Melbourne, including several renowned researchers. As a researcher in his own right, Mr Hewitt has made a sustained contribution to the field publishing over 30 conference and journal papers since 1990, with many appearing in the leading outlets for the field including IEEE Photonics. These are complemented by a number of Australian patents related to optical fibre transmission.

In his role as an Honorary Fellow, Mr Hewitt has continued to actively support research activity at the University of Melbourne. At the Centre for Neural Engineering, where he has been based most recently (2014-), he was working across a variety of research projects with both academics and students. The value of his contribution in this role cannot be understated.

In summary, Don Hewitt has made an exceptional contribution to the University of Melbourne over a period of six decades. He has left an extraordinary mark on the Australian electronics and photonics research community through his work and supervision.