



Personal and career development in engineering

Professional Engineering Institutions

This audio track is an interview with Peter Hills who is past President of the Institute of Engineering Designers. Peter had a distinguished career as a professional engineering designer and remains a Fellow of the Institute. As a member of the board of the Engineering Council UK, the body which encompasses all the institutions, his perspective is a wide one. We'll be talking about the general role of the institutions and the detailed steps of applying for membership, but we started with the basics of how the professional institutions began, and just how many there are in the UK.

Peter Hills

Probably about fifty, or forty-seven or some such number. The very first one was the Institution of Civil Engineers and then they wouldn't have Stephenson as a member so he set up his own, The Mechanicals, next door in Birdcage Walk. The electrical, the aeronautical, certainly the chemical engineers are the really big ones, and then you get down to very small and very specialised institutions. The Institute of Acoustics, for example, has about a hundred Chartered Engineer members, perhaps two or three thousand members who simply work in acoustics and things related to that, so they would be down nearer the bottom, and I'm sure that somewhere there's rather like the old union of lace card-makers with only seven members, there must be an institution with hardly anybody in it. And of course there's also a lot of movement between the institutions at the moment, that there's a bit of one taking over the other and merging, and so on, so I think probably the number of institutions will be a changeable number.

I/V

Most of our discussions centred on the practicalities of applying to and joining an institute. Peter began by describing the current pattern of membership as officially designated.

Peter Hills

The Engineering Council UK registers three types of membership for which you pay a small fee each year, it's about £22 I think. Let's start with probably one of the best known, that's Chartered Engineer, or CEng, it doesn't mean Church of England, it's Chartered Engineer. And the next grade is Incorporated Engineer which, for which the designating letters are IEng, and then there is Engineering Technician. Historically there have been levels associated with these things – CEng at the top, IEng next, and then Engineering Technician. The Engineering Council UK, however, is adamant that these states are different but one is not necessarily better than the other. In fact, SARTOR, Standards to Routes and Registrations of the Engineering Council UK, have been changed only this week to allow people to have both CEng and IEng, and that would indicate that people having both of those designator sets of letters would have, as it were, two different things, not one subsuming the other.

I/V

So if a student wanted to apply for membership of an institution what advice would you give them, how should they go about it?

Peter Hills

Find the name and address of the institution that best suits you by talking to colleagues and you ask them to suggest an institution. The institution that you write to will then send you a membership pack and the membership pack of the Institution of Engineering Designers contains an introduction to the Institution of Engineering Designers, a list of the benefits of membership, a statement of what your fees might be, various notes about training requirements, and the sorts of referees you will need to help you fill in the application form,

which will also be in the membership pack, and you will be asked to sign a declaration that you are a good person and that you are ethically inclined, and that you will abide by the laws of the institution. You typically start as a Student Member, and there are various grades of membership in each institution that rise up through Graduate Member once you've graduated, through to Member, and then Fellow, and Fellow is usually associated with somebody old and feeble, but sometimes old and still quite capable. It's certainly the highest rank of membership of the institutions. Through that institution if you wish to obtain Chartered Engineering status, or Incorporated Engineering status, or Engineering Technician status, you would apply through them, through the institution, to the Engineering Council UK for registration and you pay your fee for registration to the institution of which you are a member, but your registration is held by the Engineering Council UK which has an arrangement with the Privy Council to take on that duty.

I/V

So having submitted the application form, what would happen next?

Peter Hills

It will seem to take a long time, you shouldn't be disheartened. You cannot vet somebody's application form in just a week. You need to go back to the referees, it has to be done responsibly, we have to remember that engineers are responsible for safety in hospitals, they're responsible for safety on railways, in aircraft, motor cars, wherever engineers touch things they are implying that their professional ability will guarantee safety for the public. It does take a little while for each institution to satisfy itself that you're a worthy person for membership but I do think it's worthwhile because, in a way, that time period guarantees that when you are accepted you are a rather special person, you are capable of dealing with the needs of the populace in an ethical and competent manner.

I/V

What sort of skills and experience would the institutions be looking for?

Peter Hills

Some educational level which will be specified, depending upon the level of which you are applying for membership of the institution, and there will be a requirement for experience to enable you to have full membership which is usually referred to as corporate membership, and Corporate Members can vote on institutional matters, but if you're a Student Member or a Graduate Member it implies that you've satisfied, or are satisfying, some educational requirements of the institution. If you then gain the necessary experience, which might be in practice or in management of that area of technology, then you will satisfy the requirements for, say, a full Member of the institution.

I/V

And if you were a full Member you would get the CEng or IEng?

Peter Hills

You can then apply for CEng or IEng, yes.

I/V

And would an interview be involved in this process?

Peter Hills

This would vary from institution to institution but the standards laid down by the Engineering Council UK will mean that you will have to present some proof, say a folio of work or whatever, to show that you are a competent person and can do what you claim you can do.

I/V

Could you tell us something about what the interview might be like, what the format might be?

Peter Hills

Well the formats are laid down so you can ask to see a format, well if not a format then you can ask to see what is going to be required of you, the format of course may vary from one

institution to another. This is all quite transparent and essentially it is a routine for enabling you, the applicant, to communicate with the people who are of the institution already, and to make sure that they understand that you are a sound and competent person.

I/V

Tell us something about what you see as the benefits of membership.

Peter Hills

I think these are very personal. To me, to be a Fellow of the Mechanicals and a Fellow of the Institution of Engineering Designers means that, in both cases, mean that I have obtained some, if you like, minimal level of respect from my peers in those areas of activity. At one time, of course, they were qualifications in themselves. In the days of the old HNC, perhaps fifty years ago, people aspired simply to belong to institutions at a particular level in order to have something which might be considered to be equivalent to a degree. Very often now we ask for a degree as well. But I think in the end it is the fact that you are part of a body of people like chartered accountants, or doctors or lawyers, who are acknowledged through membership of the institution as being sound, ethical, competent people.

I/V

Are there any particular skills you'd say that the institutions are interested in?

Peter Hills

Well I suppose in a way their skills are defined by their name, and that's not meant to be a facetious answer. In the case of the Institution of Engineering Designers we have three divisions. The original one, the engineering design division, you have to be a competent engineering designer and that would mean being able to analyse and obtain dimensions for mechanical and electrical, and civil engineering, structural engineering bits and pieces, and the members of the institution work in a wide range of companies. We also have a division called the product design division which is aimed at giving professional standing to people who design some of the more fashionable items and the more fashion-based and slightly, perhaps, ephemeral items, they might be house styles for a large retailer, or they might be exit signs, or they might be knives and forks, though have an aesthetic component, so you've got to be competent in being able to make things, and make them have market appeal so that somebody will look at them in a shop and say I want them, for example. We also have a division in which Computer Aided Design and draughting is important because there are practitioners of that particular skill that might work in architecture one week, and might work in engineering another week. These three divisions in our institution are mirrored in other institutions. The Mechanicals, for example, have an automobile division and they also have a railway division so you would, in order to be part of an institution, you need to be competent in the areas which it itself has an interest in.

I/V

Given the huge number of engineering institutions what's the best way for a student to find the one that suits them?

Peter Hills

I suppose the best way would be to write to, or get in touch with through the internet or whatever, the Engineering Council UK and say please tell me what the names are of all the institutions that there are, and how I can get in touch with them. If you get in touch with the Chief Executive of an institution, or sometimes called the Secretary with a capital 'S' of the institution, ask is there somebody in my area I could talk to about your institution?

I/V

And the typical Open University student will probably have more than average work experience for possibly rather different qualifications to other students – do you have any particular advice for that type of student?

Peter Hills

Well my own experience has been that if you think it's all impossible because you've got the wrong qualifications, if you keep leaning on the door sooner or later it opens, and so I don't

think students should be put off by having unusual qualifications, but they may need to add to them, and in fact throughout professional life you may need to go on adding particular skills to what you already know.

I/V

There's recently been a change in the status of the MEng which now has to include some postgraduate study – do you think that's likely to affect the approach of the institutions?

Peter Hills

I don't think in itself it will. I think it's much more a symptom that MEng is going to be seen as the degree for Chartered Engineer and that there will be IEng degrees.

I/V

I asked Peter how a UK qualification fitted in with the international scene.

Peter Hills

There are numerous international bodies to which the United Kingdom has either subscribed in the past or tried to subscribe, and a variety of initiatives to try and help really the employment of professional engineers from this country in other countries. But what tends to happen is you get small groupings of people with common ideals and common ideas but somehow we've never managed to get a truly international approach to it. Just to outline why this might be – if you take a professional engineer from Germany he or she will have done a five year degree course. In this country they will have done a four year degree course. Possibly in Scotland and Ireland they will have done a five year degree course, but then you're not comparing like with like because in Scotland they don't necessarily take people with 'A' levels, they take in people with much broader basic qualifications, and so the five years isn't all about engineering, it's about bringing people up to a level, which in particular subjects, which might be considered to be 'A' level to start with. Added to that you've got the problems of licensing of engineers in states in America and you might move from one state to another and have to retake examinations in order to be licensed in that state. The Americans aren't going to throw that away easily because it would simply allow anybody whose quality they don't, or haven't fully measured, into work in their professional engineering field, so there are lots of reactions and forces acting against that sort of international co-operation. However at the last meeting of the Engineering Council UK this was discussed at some length and a working group has been set up to look into it, and I know that the European Union is leading an attempt to get compatibility of qualifications with America.

I/V

This is a course which concentrates very much on taking a personal view of where a student is and where they want to go – how do you think this sort of course might help in developing the skills that engineering institutions might be looking for?

Peter Hills

Well I think anybody going into a profession, or aspiring to be a member of a profession, should be capable of analysing their position in it and that profession's position vis-à-vis society at large. As far as relationships directly with the institutions are concerned I think it would be of great value to do a course like this in order to enable the applicant to an institution to have focused on what it is that they think is important about where they work, who they work with, the nature of their work, and where that work might go in the future, which is always of interest to the institutions themselves.