

## State of present day engineering education in India

In spite of the great enthusiasm and hope generated by the present day engineering education, unknowingly imperceptible damage is done to the future generation by the very same education. The number of engineering branches during the last few decades has grown by genetic reproduction, mutation and crossover to more than two dozen! For example, civil has split into architecture, environment, transport and so on, mechanical has branched out to automobile, textile, production, industrial, ceramic, chemical and many more, and the broad electrical engineering has taken different *avatars* like computers, information, telecommunication, instrumentation and so forth. Such bifurcations could restrict or even ruin the later career of the student.

The narrow but similar super specializations go against what is well understood by great researchers after long experience. A well-known scientist of our country stated that even for a doctoral degree one needs to learn something and contribute a little and continue to learn in later life. Another eminent scientist said it is more important as to how well you do rather than how much you do. The above deep philosophies are reflected nowhere in all our present educational system(!)

Special aptitude tests are generally conducted for those seeking architecture! This is like getting a signal from a highly noisy situation. At the undergraduate level only the broad intuitive feeling and interest should matter. The subsequent career is too long to extrapolate the growth capability of a student soon after the +2 stage. The number of seats and the fee structure vary at times among different branches as if based on an analysis.

Many simple subjects have been stretched to fashionable specializations even by institutes of higher learning. A classic example being the IPR that could be picked up in about a week is stretched to years. Such courses very early in one's career promote a skewed outlook and retard intellectual growth.

Many of the above are introduced quoting that students should be productive from day one of their employment. Most of the supposed job requirements can be met with few additional subjects or electives at the undergraduate level. In addition to the already messed up undergraduate syllabus, the student is burdened with fashionable subjects like computational fluid dynamics, finite element methods, neural networks and fuzzy logic. This makes one to wonder as to what is left for postgraduate studies! It only helps the institutions to project more faculty and facility, to seek huge fees and funding.

The present day syllabus does not stress the few, simple and subtle concepts but involves tiresome details. Most of the prestigious entrance and competitive examinations emphasize speed and memory rather than calm and collected thinking. As a result, students have little time to pursue other vocations like sports or music for a pleasant and fuller life. The end result is that generally they get exhausted than excited, put up a show of confidence than capability, familiarity than understanding. All this lead one to assume probably, the current education and jobs need information and implementation rather than insight and innovation. If the fundamentals are not taught properly, it could lead to disappointment and frustration in the ever changing later

life. Such situations can translate into undesirable societal problems.

The various specializations, subjects and syllabus are similar to the newer model of vehicles and gadgets introduced continuously into the market, the saving grace being as yet without endorsement by sport persons or film stars.

Another reason for proliferation is that generally industries do not wish to spend on training their employees. They keep putting subtle pressure on the academics to provide readymade (like ready to eat stuff) employees. With all the tantrum of the industries, one forgets that the educational institutions are better suited to provide training of the mind rather than for the job market which is continuously changing which even the best of the industry experts cannot forecast. The academics without resisting the demands of the industries cater to remain in the so-called leading edge, emerging area, and keep the younger minds in good humour.

The generally humble but not necessarily honest academics, who keep the society in good humour without being bold, are very much responsible for this sorry state of affairs. The situation can be set right by frank and free discussion among various people involved in our educational system, to bring back the simplicity to the whole system, keeping in mind that they are dealing with future generations and that of India.

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## Honorarium to Fellows

The UGC has recognized only four specific science academies (National Academy of Sciences, Ahmedabad; Indian Academy of Sciences, Bangalore; Indian National Science Academy, New Delhi, and Indian National Science Academy of Engineering, New Delhi) of which one should be a fellow of at least two academies to be eligible for the Honorarium. The National Academy of Agricultural Sciences, New Delhi has not been included in the list which, I think, should be

included. India has produced some of the best agricultural scientists in the world and a country predominantly agricultural should find an appropriate place and recognition by such a national body as UGC for its agricultural academy fellows.

I agree with Saidapur<sup>1</sup> that performance should find higher place than the age. An active and productive scientist should be encouraged to work irrespective of his age and should continue to get the Honorarium so admissible to him or her on account of

his fellowship and scholarship. Superannuation should not worry a talented person who wants to contribute in a chosen field that he has mastered all those years.

1. Saidapur, S. K., *Curr. Sci.*, 2009, **97**, 467–468.

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