

Dilemma of Set Skills and Employability



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"Whatever the cost of our education, the price is cheap compared to that of an ignorant nation." -Modified from Walter Cronkite

Some time back I have read an article on "Improvement in Engineering Education in India" in which it was stated that in order to produce sophisticated industrial products and services in the global market, India needs a number of well trained and extremely qualified engineering graduates.

Being an engineer, really I surprised to note this statement and started thinking, Firstly, what is meant by extremely qualified engineering graduate? Secondly, what are the criteria applied to assess engineering graduates in India by considering the limitation of institutions and universities? Thirdly, who has to invest to establish world-class institutions and universities to produce well-trained engineers?

The main aim of engineering education anywhere in the world is to make the stu-

dents understand the basic sciences like mathematics, physics, and chemistry along with engineering sciences and engineering arts. The engineering curriculum is also dabbling within this circle.

Every engineering student has to choose his choice of a specific discipline which he poses interest. Many times the discipline is imposed on student based on his score in the secondary school exams or entrance test.

However, the institutes are expected to demonstrate the domain specific subjects' to the student, 'How the basic sciences, engineering sciences and engineering arts are involving in the process of engineering in the production and service sector with very wide scope in the form of theory.

There is also no provision of development of soft skills in their curriculum. In all engineering institutes, time has become very scarce for all students and staffs. This situation reminds the comment of an Amer-

ican humorist, Mark Twain **"Education: the path from cocky ignorance to miserable uncertainty."**

Here, the society needs to understand the limitation of the engineering institutions in view of time duration and curriculum suggested by a regulatory body.

Every engineering graduate has to complete around forty courses within four years duration. Also, the student has to meet each and every expense from his own sources during his engineering education. The limitation of time and investment denies his opportunity to learn any subject or domain in depth.

On the other hand, within available capital and tuition fee sources from students, the role of an institute is also limited to teach graduates, **"How to learn"** but not to make him as an expert in any discipline.

The examination conducted by institutes and universities are not focused on industrial needs as the support of industry and government is totally missing in our engineering education system.

Also, there is no model examination system or industry focused framework available in universities and institution to fulfill the needs of industry.

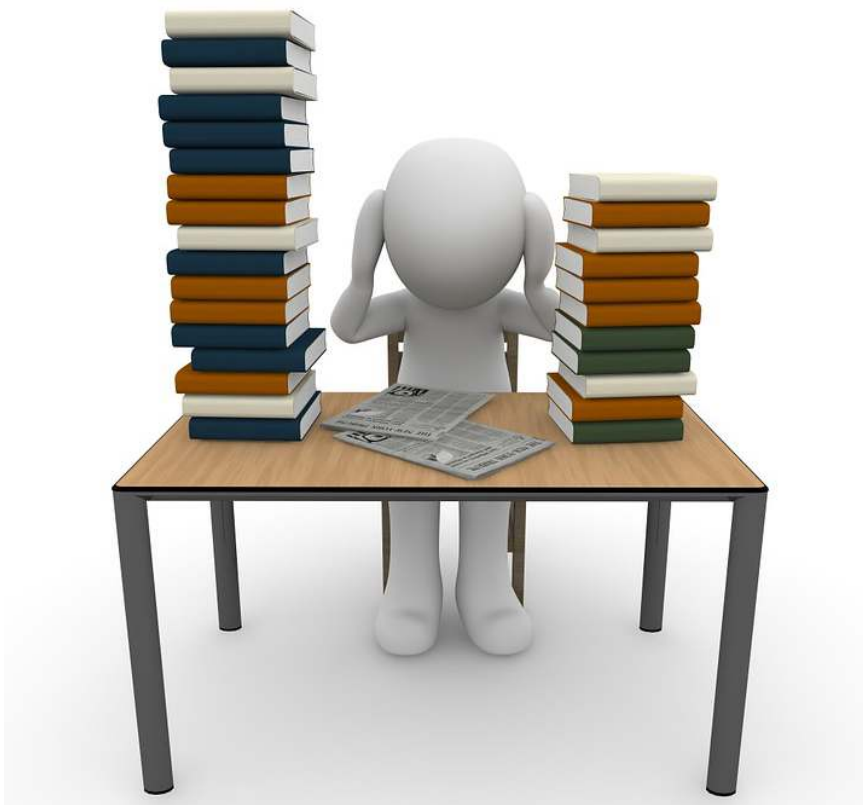
It is, because of the area of specialization or domain in every discipline is very vast and diversified.

Many new domains are emerging every year in the world market makes the stakeholders in perplexing situations.

This confusion exists because we are not able to assess the need and limitation of the new set of skills of an engineering graduate in the fast changing technological world.

The type of products and services rendered by each industry has its own way of process and methodology which depends on the cost and consumers mindset.





It is not possible for institutions to address engineering graduates about all needs of industry within four years period. In the digital era, the model of product and type of services are not as same as in the past. Hence the enhancement in productivity is the sole responsibility of industry not institutes.

It is also very difficult for engineering graduates to visualize the following at institute level.

What are the responsibilities in his first job? What kind of knowledge or training is required for his job? What is the pay range in his probation tenure? What is the work environment? Where is the job? And who is the boss?

In this context, the productivity of the industry does not depend on engineers alone, but the labors, type of machineries, investment capability, the policy of the government, attitude of the client or management and working environment etc.

The status of industries in India in view of globalization is also not commendable. Are our industries and organizations well articulated as a system to compete in the world market? So that the productivity in services and products are comparable to

world standard. Most of the organizations are lacking in professionalism and personality conflicts.

A well-articulated organization should have two important key elements. The first one is the well established training wing for fresh graduates and the second is R&D wing to forecast the technology transformation from time to time.

If any organization does not have this kind of establishment and infrastructure certainly lack in productivity and fewer chances of comparing the services and products at the global market.

Most of the organizations particularly in construction industry never equip the engineer with enough lab and design consortium facilities but expect him to perform according to the imaginary target of self-styled CEO or proprietor.

Many construction projects confront with the cost overrun and time overrun due to insufficient infrastructure with poorly articulated subsystem in the organizations.

In the recent past, it has become a fashion to blame our education system and engineering graduates without considering the status of the industry in all sectors. Many construction projects suffer not only due to lack of organizational system but poor investment in the training and human resource management.

In this situation many forum already have jumped into the bandwagon and started blaming the stand of engineering graduates in India makes the society very sad.

In fact in the digital world bulk of knowledge in any domain or discipline is not permanent as the innovations keep on changing in working force, materials, erections and maintenance etc. We have to just monitor the productivity by harnessing hi-tech support with the group of trained manpower. In this context skills in the information system, control system and feedback are more important.





Very often, the knowledge learned at the institute and universities become obsolete in the industry due to the changes in technology and operating system thus makes everyone as illiterate

Alvin Toffler - "The illiterate of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn and relearn."

Here, Toffler emphasis on professional attributes rather than need off the bulk of conventional knowledge learned in the colleges.

Few may take this chance to blame engineering institution in view of straw man argument.

As per Indian education system, every student who passes secondary education has a lot of potential in attributes.

It is the role of government organization and industry to assure young engineers in the employment by harnessing their self-esteem with job security.

This will motivate engineering graduates towards committed performance in the field. The institute has little role to play as the beneficiary is "employer" of engineering graduate.

"Knowledge is the most democratic source of power".

Yes, the knowledge quoted by Toffler is not the book knowledge expected by Indian employer.

The knowledge mentioned here is "knowledge about future". This knowledge shall be gained by engineer only out of the working experiences. If the opportunity is denied in the name of 'employability' the industry and nation are ignorant.

I asked this question whenever I come across someone blame on engineering education "What is employability?"

A set of skills required by an individual to fulfill the employer's need is called employability.

The set of skills needed by organizations is not the same. Also, the skills learned by some are not going to be useful when the technology and working style changes.

In this situation, it is not possible to prepare every engineering graduate with the different set of skills by any institution. Many forums already have started blaming the standard of engineering graduates in India makes the society very sad.

This has created a mindset among employers that there is a group of 'unemployable' engineering graduates existing in this land. Also, this kind of ill propaganda makes every engineering student doubt

about his talent and not excelling attributes during his college tenure.

Many graduate students learning in third tier engineering colleges not proud of their study and not visualizing the purpose of their learning due to poor encouragement by mentors and industry.

Faculties and managements are not able to concentrate in effective teaching as they are confused with the term "employability". The employability of engineering graduates is not in the hands of institutes but certainly in the hands of icons, leaders, professional bodies and mentors in the industry.

Every engineering graduate should be made as an asset of industry in turn to the nation.

I feel, it is the duty of the industries and sectors to create an opportunity for favorable training environment for engineering graduates when they finish education in order to make them employable in the industry. Of course, the beneficiaries are industries but not the institutes

Many organizations, for example, software producers recruit the engineering graduates seamlessly. Those organizations succeeded in making each graduate as their asset through articulated training. When it is possible to make civil, mechanical, textile, chemical engineering graduates to flourish in IT profession, it is also possible for other industries to make engineering graduates employable in their area of production and services

Most of the engineering graduates are learning in their father's hard earnings, not by the support of government or industry.

The capital required for well-trained engineers in India needs sophisticated engineering education system, for which is to be mobilized either by industry or government, certainly, it is not possible for Indian students affordable.

"It's time to care; it's time to take responsibility; it's time to lead; it's time for a change; it's time to be true to our greatest self; it's time to stop blaming institutions and engineering graduates."

You've got to think about big things while you're doing small things, so that all the small things go in the right direction.