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7 Managing Technical Education in India in the Era of Commercialisation

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Abstract

India is taking rapid strides in its growth path and so is the technical education and its contents. It is however noted that there are real shortage of true technical professionals matching the skills required to take care of all round technical advancements in India, whether be it on the ground, under-ground or in the space. Unlike a few decades back, there are now requirement of specialization and super-specialization in many fields which call for technical manpower with specific skill-set. Our Universities and Institutes produce a large quantity of technical manpower but the present system of technical education in most of them neither equip the manpower with the necessary technical skills needed for easy employability in Industries, nor make them competent to pursue a higher level course or research work in their field of specialization/super-specialization.

The root-cause of decline in the quality of technical education can be seen in the fact that All India Council for Technical Education (AICTE) has made it relatively easy in securing approval for setting up engineering colleges, which has led to mushrooming of Private Engineering colleges and Institutes in India in the last few decades. These colleges/institutes, in many cases, have grossly violated the norms in respect of land/ infrastructure/facilities or faculty and have become truly commercial in their character. During the admission process, these colleges/institutes compromise on talents of the students in the name of capitation fee or donations.

Under the present circumstances, we need to give a serious thought on the issue, "Are the present lot of technical manpower/ "specialists" passing out from the above Universities & technical institutes really competent to face the challenges of vast all-round technical developments? Does the system and course of

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technical education followed in our Universities and technical Institutes need changes so that the present lot possesses the necessary skill-set to face the present era of specialization & super-specialization?

Taking the above into consideration, this paper examines in detail the state of technical education in India and suggests certain remedial measures to improve the quality of technical education in the present era of commercialization.

Keywords:*Private Engineering colleges, decline in quality of technical education, commercialization*

Introduction

- ***Commencement of Technical Education in India - pre-independence & post-independence period***

  <u>In the pre-independence era (The Formation of Technical Education)</u>

  Modern cult of technical education began with the establishment of Survey School in Madras (now Chennai) by English tradesman in 1794. Since then technical education has spread to every corner of the country and passed to generations ahead.

  Industrial revolution took place from 18th to 19th century and witnessed major changes in agriculture, manufacturing, mining, transport and technology had a profound effect on socio-economic and cultural conditions starting in United Kingdom and then subsequently spreading throughout the world including India. Industrial revolution marks a major turning point in human history.

  Many manufacturing units came up which required skilled as well as unskilled labour, to train technicians, many training schools were instituted.

  Creation of centres for technical training in India was envisaged by British rulers. This necessity arose mainly out of training of overseers for construction and maintenance of public buildings, roads, canals and ports and for the training of artisans and craftsmen for the use of instruments, apparatus needed for the army, the navy and the survey department. The superintending engineers were mostly recruited from British colleges. The locally recruited lower grade craftsmen, artisans and sub-overseers were mostly illiterate and possessed low efficiency. It was felt necessary to make them efficient and useful by giving them elementary lessons in reading, writing, arithmetic, geometry,

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mechanics etc. and this led to establishment of industrial schools attached to ordnance factories and other technical establishments Such schools existed in Calcutta and Bombay as early as 1825, e.g. one such industrial school was set up at Guindy, Madras in 1842 attached to Gun carriage factory. A school for training of overseers was known to exist in Poona in 1854.

The first engineering college was established in UP in 1847 for the training of civil engineers at Roorkey. In pursuance of the Govt. policy three engineering colleges were opened by 1856 in the three presidencies, e.g. Calcutta college of Civil Engineering, later renamed as Bengal Engineering College, Sibpur in 1857, Poona College of Engineering, Poona in 1858 and Guindy College of Engineering, Guindy, Madras in 1858

The educational work in the above colleges, had been more or less similar. They all offered licentiate course in civil engineering upto 1880, when they organized degree classes in this branch alone. After 1880, the demand for Mechanical and Electrical engineering was felt, three colleges started only apprenticeship classes in these subjects. The Victoria Jubilee Technical Institute, which was started in Bombay in 1887, had a main objective of training of licentiates in Electrical, Mechanical and Textile Engineering. In 1915, Indian Institute of Science, Bangalore, opened Electrcial Engineering classes under Dr. Alfred hay and began to give certificates and Associateships, the latter being regarded equivalent to a degree.

Later, another college, i.e. College of Engineering and Technology, Jadavpur started functioning in 1908, which granted diplomas in Mechanical Engg. course and thereafter in Chemical Engg. Course.

The credit of first starting degree classes in Mechanical, Electrical and Metallurgical Engineering goes to Banaras Hindu University established by Pt. Madan Mohan Malviya in 1917.

The British opened Harcourt Butler Technological Institute, Kanpur (now called, Harcourt Butler Technical University) in 1921 in the united province (now known as UP) for chemical science.

After about 15 years, in 1931-32, the Bengal Engineering College at Sibpur started Mechanical and Electrical Engineering courses and later Metallurgical Engineering course.

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Indian School of Mines, Dhanbad (Now, Indian Institute of Technology, ISM, Dhanbad) was established by British Indian Government on the lines of Royal School of Mines, London and was formally opened on 9th Dec. 1926.

In 1947 when India became independent, there were 36 institutions for first degree engineering education, with an annual intake of about 2500 students.

In the post-independence era

Establishment of IITs, IIEST, IIIT and NITs

The concept of the **Indian Institute of Technologies (IITs)** originated even before India gained independence in 1947.

In May 1950, the first in the series was established in Kharagpur. The institution was named the "Indian Institute of Technology" before its formal inauguration on August 18, 1951. Following the suit, another four IITs were set up, in Bombay (1958), Madras (1959), Kanpur(1959) and Delhi (1963). Then, at a later date, an IIT was established in Guwahati in 1994. The University of Roorkee was converted to IIT Roorkee in 2001. Eight new IITs were set up in Gandhinagar, Jodhpur, Hyderabad, Indore, Patna, Bhubaneswar, Ropar, and Mandi in 2008-09. Around the same time the Institute of Technology, Banaras Hindu University was given IIT status. Another six new IITs in Tirupati, Palakkad, Dharwad, Bhilai, Goa and Jammu, approved through a 2016 bill amendment were established in 2015-16, along with the conversion of ISM Dhanbad to IIT.

Indian Institute of Engineering Science and Technology (IIEST) are a group of academic institutions in India for research and education in Engineering. These were originally proposed by the Govt. of India in 2007 to meet the increasing demand for technological and scientific workforce in the Industrial and service sectors of India as well as the growing need for qualified personnel in research and development. It has been decided to create institutes under the banner of IIEST by upgrading some of the existing Engineering colleges or industries under the various State Govt. of India through an Act of parliament of India instead of setting up of new institutes. The first institute to be upgraded

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to the status of IIEST is Bengal Engineering and Science University, Sibpur, which was a University under the Govt. of West Bengal prior to upgradation. However, further no such upgradation was possible from the existing institutes/Universities of Engineering and Technology due to a comparatively poor standard of teaching and infra-structure. As such, three more institutes in the name of Indian Institute of Science and Education Research have been established located at Kolkata, Mohali and Jaipur.

Indian Institute of Information Technology (IIITs) are a group of four institutes of higher education in India focused on information technology. They are established by the Central Government, centrally funded and managed by the Ministry of Human Resource Development. They are Indian Institute of Information Technology, Allahabad; Indian Institute of Information Technology and Management, Gwalior; Indian Institute of Information Technology, Design and Manufacturing, Jabalpur; Indian Institute of Information Technology, Design and Manufacturing, Kancheepuram.

National Institutes of Technology (NITs) are colleges of engineering and technical education in India having national importance. These NITs have been formed by renaming and upgrading of earlier existing Regional Engineering Colleges (RECs) in the year 2002 by the Ministry of Human Resource Development, Govt. of India. Presently, there are 31 NITs in our country. The Govt. of India has introduced National Institute of Technologies Act, 2010 to bring 30 such institutions within the ambit of this Act to provide complete autonomy in their functioning. These NITs are located throughout the country in line with the Govt. norm of an NIT in every major state of India to promote regional development.

The Institution of Engineers (India) conducts an examination for its Associate Membership (AMIE). This examination is considered at par with B.E./B.Tech. when contemplated as an eligibility qualification to write competitive examinations like IAS, IES, GATE etc. as well as for employment in Govt. , Public & Private sectors in India. IEI also conducts examinations under Section A and Section B, a person passing the examinations for both the sections will become chartered engineer (C.Engg.) and the latter is considered at par with a bachelor's degree in all National and International bodies.

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In India there are **Polytechnic Institutes** which offer three year diploma in engineering post Tenth class. These institutes have affiliation from state board of technical education of respective state governments. A person holding diploma may appear for AIME examination for becoming an engineering graduate.

In post-independence India, growth of higher education took place in two distinct phases. In phase 1 from 1947-80, there was steady growth which resulted in geographical dispersal of higher education facilities and broadened the base of higher education. 1980 onwards expansion has been largely driven by private initiatives. After 2000, there has been a consolidation of private initiatives, particularly in professional higher education [1]. It has given a broad dimension to the education sector.

- **Participation of Private Sector in establishing technical institutes**

  Post 1980, Private Engineering Institutions have spawned all over India because the government has not had the funds to increase significantly the number of engineering schools it runs. In 1970, India had a total of 139 engineering institutions, and only four of them were private. After liberalization, there was enhanced demand of engineering manpower and the government institutions were not able to fulfill it which led to the historic decision of privatization. The Private Universities (Establishment and Regulation) Bill was introduced in 1995 in the Parliament. Passing of the bill gave boost to opening of many private engineering colleges. By the end of 2000, number of engineering institutions rose to nearly 1,400 out of which about 200 only belong to the government. Growth of private engineering colleges continued even beyond 2000. However, in the year 2008, Ministry of Human Resources (MHRD) announced to open eight new IITs under XI five year plan in different states of India and upgraded IT BHU as IIT to fulfill the demand of technical manpower of the country which makes the total number of IITs to sixteen as stated above.

  Mushroomed growth of private engineering colleges in India continued with almost every state having at least one private funded engineering institution.

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It was specifically noted that there are states especially the north-eastern states like Mizoram, Meghalaya, Arunachal Pradesh, Sikkim, which have either 1 or no technical institutions.

- **FDI in Higher Education**

Government of India has permitted 100% FDI in education through automatic route since 2000. In March 2010, Government of India approved, the Foreign Educational Institution (Regulation of Entry and Operation) Bill, 2010, to allow foreign education providers to set up campuses in India and offer degrees. The proposed law allows international institutes to participate in the form of collaborations, twinning programs, joint venture. The bill has attracted FDI inflows in the country.

- **Growth/Decline in the Standard of Technical Education**

Real Challenges

In 1970, India had a total of 139 engineering institutions, and only four of these were private. Due to neo-liberal policies adopted by government of India post 1991, private players rushed to enter in the field of engineering education. Share of private engineering education has increased at a faster rate leaving behind only 15% engineering institutions of India to be funded by the government. This explosion in higher education has allowed many more Indians to pursue an engineering degree. But the wider availability of engineering training has come with a dilution of quality.

A NASSCOM report says the quality of engineering institutes and engineering graduates needs to be improved. Apart from a few elite institutes, engineering education in India is often seen as outdated and irrelevant. Most graduates do not possess the requisite skills, and industries have been facing a consistent deficit of quality-trained engineers.

Also, most institutes, including premier institutes, fail to attract and retain quality faculty. These deficiencies in engineering education need to be tackled immediately to ensure that India does not miss out on significant opportunities.

Commercialization can be viewed as one of the major factors for this decline. With mushrooming of private engineering institutions, the main aim of these institutions is to earn profit. And in order to earn

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profit they are ready to compromise with the quality of students by increasing the intake capacity, compromise with the output by appointing less qualified faculty at low salary, compromise with the processing part by having less equipped library facility, poor administration, poor infrastructure. It might give profit in near future but the decline in quality is sure in long run.

- **Major Concerns in the Present Scenario**

  Two major factors responsible for this worrying trend are, one, the ease of securing approval from the All India Council for Technical Education (AICTE) to set up engineering colleges has led to the mushrooming of institutes as stated above, many of which do not have the right faculty or the curriculum to train students. Second, the courses being taught are not in tune with the industry's requirements, both for product manufacturing and services sectors.

  "There is a perennial problem about the quality of (engineering) students," Nasscom President R Chandrasekhar told Business Line. "Over a period of time, the linearity between revenue and headcount growth in the IT sector has disappeared. Apart from global factors like changes in the economies of many countries and protectionism, there has been an increase in the levels of automation, and companies need to respond to these changes and hire accordingly."

  The skill sets required have also changed. IT now requires higher levels of leading-edge skills like cloud analytics, robotics, process automation, and so on, and engineering graduates of the day do not always come qualified for such jobs.

  "Companies not only provide tech inputs, but have to understand the business domain to deliver value. So, a good understanding of the business aspects and having multi-faceted orientation is a must. These factors are further aggravating the mismatch between skill sets being imparted and those that needed by the industry," Chandrasekhar adds.

  His views are echoed by Stephen Sudhakar J, Senior Vice-President–HR & GS, Hyundai India. He says that with rapid changes in the industry and innovation in manufacturing, engineers need to have multi-faceted knowledge: for example, a mechanical engineer must have a good understanding of electrical and electronics disciplines, and vice-versa.

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Most important, there are disruptive changes in business models every five years. "However, the curriculum and practices in institutes have not kept pace, rendering them irrelevant.

- **Violation of norms by Private Engg. Institutions**

  VE Narawade, Secretary of the Citizen Forum for Sanctity in Educational System, says nearly 80 per cent of the private engineering colleges in Maharashtra are flouting norms in respect of land or infrastructure or faculty. "The AICTE is shying away from taking strict actions against the defaulters," he claims.

  With inadequate faculty and facilities, it is not surprising that the students who pass out of such institutes are ill-equipped to deal with the demands of the job market. Unless the AICTE sets things right, engineering graduates will continue to flood the job market but remain jobless.

  Colwin Fernandes, chief technology officer of Opcito Technologies, warns that the labour market is changing rapidly due to advances in automation technology. New jobs will come up, he said, but Indian engineers may not be able to take them up. "Layoffs will happen. Graduates need to make themselves layoff-proof."

- **Steps required for improving standards of technical education and employability of technical graduates**

  When we look at taking our technical education system to a higher level meeting the industry requirement, which, in turn, will enhance the enormous potential offered by the demographic divide – a feature unique to India, it is important that we take a brief look at what are the approaches to higher technical education around some of the developed countries.

  Some of the key aspects of education, in most of the developed world, are: autonomy, democratization, lifelong learning, dynamism, inter-disciplinarity and response to, and adaptation of changing technology. The educational system in the developed world has very little regulation. The state's role is more as a promoter, mentoring, and enabling technical education rather than a regulator.

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Whatever little regulation is required is routine and approvals are very quick. The fundamental belief is that excellence flourishes when there is a high degree of autonomy and very minimal regulation. Quality assurance is achieved through accreditation. Market forces do play a major role.

Citing US higher technical education system, the same is basically unregulated. It relies on internal checks and balances, and uses accreditation process to assure quality and relevance of outcomes. The fundamental tenet is: autonomy is important for excellence and quality outcomes. There is tremendous pressure on maintaining quality and excellence. This is enforced by an accreditation process, more often than not, ABET - www.abet.org.

There are other agencies like (WASC - Western Association of Schools and Colleges http://en.wikipedia.org/wiki/ Western_Association_of_Schools_and_Colleges, Middle States Commission on Higher Education http://www.msche.org/?Nav1=ABOUT&Nav2=MISSION–but these are regional). All these accreditation agencies force programs to think about what outcomes in the program will be accomplished, and also how to continuously improve the program outcomes. It is to be noted that an accreditation body does not define the outcomes, it looks at the objectives and outcomes defined by the university and accredits them against these outcomes.

- ***A vision for Future***

The mismatch between societal and education gradients is one of the key factors that creates discontent among the students. Society is very dynamic, while in comparison, the educational system is pretty much static. We may consider the following factors to improve the present condition of technical education in India.

- ***Dynamism***

Future educational system will have to be highly dynamic – essentially making the education system agile so that it quickly responds to changes in science, technology and aspirations of the youth. It has to quickly respond to societal changes. If new developments take place in STEM (Science, Technology, Engineering and Mathematics) they must instantly find their way into the educational curriculum.

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- ***Modularity***

Future education will have to be modular in nature – length, breadth and the depth of the module will be variable and will depend on the subject. This will facilitate flexibility and help develop a self-paced education system. In fact, in the modular system some courses could spread over time, while some could be intense and get completed over a couple of days – 14 to 16 hours in two days. Essentially we will move towards a fractional credit or equivalently a micro credit structure. Credits will be a function of the length, depth and breadth of the module.

- ***Credit and Mobility System***

Modularity, and flexibility will also enable mobility and credit transfer. Fundamentally, education will be based on clearing credits. On accumulating a certain number of specified credits, one will get the degree. Moreover, one can move from one place to another and carry forward the cleared (accumulated credits) – almost like bank accounts. Another variable that will come in will be recognition for completing part of the total credits. If a student decides to leave after clearing part of the total number of credits say, 50% of the total credits, she could be given a diploma or certificate, etc. She also has the option of coming back after a few years to clear the remaining number of credits and get the final degree. The part credit completion could be a graded process, e.g. 33% credit completing, 70% credit completion, and finally 100% credit completion. Also, in the credit mobility system it will be possible to transfer credits, taken at a sister institution, to the parent institution. Moreover, in the Credit and Mobility System – a student can change her domain or specialization -- if there is a major change she will have to spend extra time to get the degree. Thus, in a broad sense, credit and mobility is not only for moving from one place to another, but also for moving from one stage in life to another.

- ***Nonlinearity, Flexibility and Self-Paced***

Many things in the world are moving towards a nonlinear, asynchronous system – Internet is inherently nonlinear – we all access information in a nonlinear fashion, video on demand is nonlinear, integration of knowledge and information is a nonlinear process. So why not education? The word nonlinearity should not be confused with chaos – nonlinear systems indeed have a systematic approach as evident by nonlinear equations in mathematics. Thus a student can choose her path to

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education. Of course, nonlinearity will work if there is flexibility in the system. Thus another attribute of the future educational system will have to be flexibility. Dynamism coupled with flexibility will enable the students, albeit with guidance, to design her own curriculum. Each student will pace herself – we will move away from the present system of one size fits all. Customization is the future in technology and this has to be the case with education too.

- ***Courage***

Future education will need to impart courage to our students to think innovatively, think differently, courage to challenge and if need be break established norms in technology and engineering. Today's education teaches students acceptance and not courage to challenge. Courage is very vital to create an innovative ecosystem. If we look around the world, path breaking technologies have occurred when the inventor / innovator had the courage to challenge an established practice. Thus, future education must inculcate the courage for uninhibited thinking. Courageous approach will lead to mistakes. Consequently, along with courage we need to teach them that committing mistakes is part of the learning process, part of invention and innovations. Mistakes, though unpleasant, are as much a teacher, perhaps more so, as successes.

- ***Design Spine***

Today, creative design is becoming as important as engineering. With advent of new technologies, like digital fabrication and interactive graphics, the divide between creative design and engineering design is being bridged. Product development is not only about engineering and technology but is also about creative design. Thus, it is imperative that we incorporate a design spine in the educational curriculum. One can exploit modularity, mobility and credit transfer to execute the design spine – the idea being that courses in creative design could be taken from those institutions which have the expertise and then the credits can be transferred. Also the credits could be fractionalized. It is not necessary for individual institutes to have design expertise. Of course, one can built expertise at the parent institute and offer the design spine. The key aspect is that we create design thinking among students – design thinking is not only engineering or aesthetics but also for all aspects of life.

- ***Experiential Learning***

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In modern times, as technology and Internet become all pervasive, students will have easy access to information, lecture notes, presentations, video lectures and all that, from all around the world. They will soon start questioning the relevance of lectures – which they will find not just monotonous, but perhaps redundant. The future requires experiential learning which has several components: teaching and learning will involve lot more project work – in fact, here too the projects will be chosen by students – they will not be assigned. Classes will involve group discussions, problem posing, problem solving, posing challenges and possibly tackling challenges. Teacher will not be a teacher but will be a mentor, a guide, an advisor, a moderator, a bouncing board for ideas and challenges. Students will not be writing exams – they will write white papers, technical papers, business plans, thought provoking papers, questioning papers, challenging papers and make formal presentation on all these. In essence, learning will not be through lectures and exams but through an experiential behavior emanating from the medium of projects, discussions, presentations and what have you. Experiential learning will of course involve a strong industrial interaction – either on site or having industry personnel spending time at educational institutions.

- ***Earn While You Learn***

In a vast country like India with varying economic structure, there will always be a large percentage of students who like the option of earning while going through college. Many a time this may be dictated by the economic background of the student. In the flexible credit transfer- based model, this aspect can be very easily incorporated. A student will have the flexibility of selecting enough credits so that she will have time left to earn a living. It is likely that the student would take more than the required number of years to accumulate the desired number of credits for a degree.

- ***Education on Smart Phones***

India has nearly a billion mobile phone subscribers and most of them are smart phones. This platform is getting more powerful every day and is capable of doing a lot more than what it was designed for. In fact, in times to come, a phone call will become one of the thousand other things that you can do on the smart phone. Smart phone today is used for health care (counting your heart beat, number of steps you have walked etc. . .), for social networking with WhatsApp, Google-hangout, Facebook and so on. There are GIS apps so that you can navigate yourself in cars and also while walking in any city or town in the world. I am sure one can cite many more examples. But one thing missing is, apps for

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education. In future it will be the smart phone platform which will dominate online education – there will be versions of MOOCS on smart phones, distance education modules, interactive science and technology, ask me anything sessions, etc. Moreover, all these will be voice and gesture active applications. For future education systems, to reap the demographic dividend, it is imperative that the smart phone platform is exploited to the maximum.

- ***Churn***

Our educational system is by and large static. If at all there are changes – these are incremental and that too after others in the world have implemented it. Somehow our psyche requires assurance before we implement ideas. The future educational system will be autonomous wherein experimentation with the system itself will be part of the ecosystem. In fact, a regular and frequent churn in the educational system is a must – it is only through frequent churns that we will be dynamic and keep innovating so that the system keeps pace with changing timesand does not get outdated. The system will have to provide the freedom to the teachers to experiment with innovative pedagogy without the fear of failing. It is indeed a challenge to create an ecosystem of experimentation within the system itself – in fact, this is the hall mark of all advanced systems – stability in a highly dynamic system. You attain stability by constantly changing and not by remaining static – something like a two wheeler – the system is constantly rotating but still maintains stability.

- ***Job Creators and not Job Seekers***

Entrepreneurship has started making its presence felt on several of the educational campuses. Start-up culture is catching the attention of the young graduates. But it needs to proliferate a thousand times. In future, our education system should graduate not just job seekers but job creators. This is a tall order and one is well aware that not everyone can be a job creator. But, an ecosystem of job creation must be cultivated in the education system.

Conclusion

The future education systems will be defined by mobility, credit transfer, nonlinearity, flexibility, agility, modularity, intensity, diversity, churn and experientiality. The new vision for education has to be far reaching and should not be dictated by immediate needs.

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If India has to keep pace with the rest of the world and adjust to the newly emerging realities of the educational scene, we shall have to redesign all our institutions, policies, structures, procedures and processes. There has to be lot of autonomy, lot of experimentation, lot of trust and courage, and an ecosystem imbued with a whole lot of dynamism and faith.

But for all the above, we need to develop a more strict control mechanism – Government participation. The ease of obtaining approval from AICTE, the controlling body for technical education, the latter's poor & loose inspection system has led to present state of affairs. A reconstitution of AICTE comprising members from industries (both Private and Public Sector Units) apart from academicians is earnestly required. It must possess absolute power in taking decisions without any political interference. The above reconstituted council shall serve for a period five years and thereafter about one third of the existing members in the council shall be replaced by the new ones from the similar disciplines. Also, an apex body controlling the AICTE shall be formed for periodic review of the AICTE recommendations. Such apex body will also give their own recommendations to AICTE from time to time for improvements in its functioning, as required, in view of dynamic state of our industries undergoing automation at a rapid pace. This would, in turn, help our engineers/ specialist develop special skills needed in the present industry using the latest/state-of-the-art technology.

In western world, many industries have their own engineering colleges/technical institutes, wherein the syllabus has been prepared in line with requirement of those particular industries. They keep on revising these syllabi based on renovation/ upgradation of their industries. Following this model, the unemployment problems do not crop up very often or the employment problems are minimized. Taking the same into consideration, proposal for attaching engineering colleges in India with certain industries, which may train students in the fields of their requirement, may not only help in keeping the syllabi relevant & up-to-date but also go a long way in reducing the unemployment problem.

Formation of the active Industry-Institute Interaction Cell in every technical institute will help a great deal in making our engineers suitable for the present day requirement. Every engineering college shall mandatorily arrange at least 10% of their lecture classes from employees of various industries (both from India and abroad).

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From the foregoing, we may conclude that "Strict Control on Quality to be exercised by AICTE, the Governing Body for technical education in India" and "Active Interaction between Technical Institutes and the Industries" are the two key phrases for making our technical education suitable and relevant in the present scenario.

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