REVAMPING OF TECHNICAL EDUCATION A NEED OF TIME

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Introduction :

"It is not only machinery that becomes obsolete, one has to guard against obsolescence of the mind ".

For the growth and prosperity of the nation, besides the raw materials, minerals and financial resources, a human resource with scientific and technological capabilities is always the governing factor. To keep pace with the rapid development in the technology, the ability of the people to master the emerging technology has to be enhanced.

In the present technical education system in India, there is little scope for adoption of technological development into academic pattern. For this purpose, the present system should be revamped so that the technological development in the R & D section and institutes should go side by side as a result the time delay in adopting a new emerging technology in the academic pattern will get reduced, which makes the educational system more efficient, with respect of technological development.

Need of Revamping :

The following points highlight the necessity of revamping.

1) The half life of our engineering knowledge is about five years. This means that five years from now, 50% of the technical knowledge acquired today will be obsolete. If we do not revamp the educational academic activity/structure on a continuous basis, the output will be equivalent of the vacuum tubes.
2) Financial investment on a massive scale have been made in the past for the growth of the industries, without matching the investments in the technical education in view of development and adaption of rapidly, growing technologies. Consequently, the much desired returns from the investments are not obtained and crores of rupees are locked up in sick industries and this is hampering the national development. To cope up with this technological gap, Indian industries find their way by importing the technology, which will add to the burden of our financial pattern.
3) Another aspect of this technological gap is mirrored in the brain-drain to the western world due to lack of proper research facilities.
4) Present educational pattern gives rise to job oriented thinking in higher educated people due to lack of entrepreneural education, which gives rise to the unemployment problem.
5) Due to everwidening gap between emerging technology and our academic curriculum, there is a

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shortage of proper trained manpower.

6) The gap between the classroom education and shop floor requirements is always realized in technical education and it is magnified due to lack of adaption of new technology aspects in the academic pattern.
7) For the development of academic knowledge and understanding of the students.
8) For the enhancement of the learning competence of the students.

Ways And Means of Revamping of Technical Education :

The science and technological things are developing and changing very fast and if one does not resort to revamp education, he will be nowhere within no time. Therefore we think that, in order to make a purposeful and meaningful technical education, it is necessary to have a revamping of technical education.

The revamping program of technical education is to be designed keeping in view the following objectives :

- Increasing R & D activities at the institutional level.
- Developing entrepreneural qualities among the students.
- Continuing Engineering Education program.
- Development of teaching technology.
- To fill up the gap between formal education and practical industrial needs.
- Transfer of technology from laboratory to industry.
- Professional development of the teachers in technical education.
- Interaction between industry and institutes.
- Interaction between institute and community.
- Import of technology and brain drain concept.

To achieve the above objectives of revamping the technical education, following institutional and interinstitutional ways can be adopted.

1. BY ESTABLISHING ENTREPRENEURAL DEVELOPMENT CELL :

At every institutional level there should be a separate cell for development entrepreneural qualities in students. Alongwith this EDC can function -

a) For boosting consultancy activities in technical as well as commercial areas of entrepreneurship.
b) For finding new opportunities for the entrepreneur in new emerging high tech areas.
c) Arranging awareness camps and enterprenurship development camps.
d) Interacting between entreprenurs and various Govt. agencies.

2. SCIENCE AND TECHNOLOGY PARKS

This will be an effective way for interaction between industries and well established technical institutes.

a) Science & Technology parks can promote the entrepreneur activities.
b) Science & Technology parks will boost the R and D activities in the technical institutes which is essential for self sufficiency of the park.

c) The problem oriented R and D activities will check certainly the import of technology from outside the country.

3. ONTINUING ENGINEERING EDUCATION (CEE):

To keep pace with the rapid development in technology, it is very much essential to undertake CEE program.

The continuing education in engineering is for three different sets of people in India. They are

a) Teachers in Engineering institutes.
b) Engineers in industry and public utilities.
c) Self employed technicians.

For teachers it can be implemented by technical teachers training institutes, by arranging summer, winter schools devoted to a single topic in new technology area.

For industry personnels, technical institutes should conduct the refresher courses.

For self employed technicians, some organizations run the programs but there is no linkage between modern engineering and tradition. Technical institutes can help to interact between traditional technicians.

4. BY ESTABLISHING R & D CENTER

Here, it is suggested that there should be a separate R and D Centre at every institutional level. It helps to

a) Improve the infrastructural facilities available at the Institute.
b) Interacts with well established R and D organizations like BARC, TIFR, DRDO etc.
c) Boots up the consultancy services.
d) Help the students to get the projects which are practical problems of industries.
e) To improve the basic conceptual understanding of the students, by involving them in R and D activities.

5. FACULTY DEVELOPMENT PROGRAM:

Higher technical education is meant to provide ideas and men to sustain development of any nation or society. No program of high quality education can be implemented if the faculty themselves are not creative or are devoid of the excitement of innovation. Therefore it becomes necessary to have

(i) Continuing Engineering Education Programs;
(ii) Distance education program;
(iii) Industrial training program;
(iv) Qualification enhancement facility.

A teacher himself will have to remain a student for updating his knowledge for which he will have to be learning continuously.

6. CURRICULUM :

In order to cope up with the technological changes, or with the explosion of knowledge, change of curricula have to be very frequent.

7. FORMATION OF STUDY CIRCLE :

In order to have the interaction between the different branches of technology,in every technical institute there should be a study circle, which involves the faculty as well as students of different branches. this is essential for carrying out the R & D activities relating to the interdisciplinary high-tech areas like robotics, computer applications, microprocessor applications etc.

8. NEW ASPECTS OF TEACHING TECHNOLOGY:

This is the most important factor which is directly concerned with the main parameter of the education process.

The conventional method of classroom teaching i.e. chalk talk method cannot fulfill today's requirements. Present education will become more fruitful if it makes use of modern sophisticated teaching aids.

Following are the various types of communication technologies; through these agencies , knowledge can be imparted to the students more effectively, besides the classroom lectures.

a) Audio visual teaching aids like radio , television , telephone etc.
b) Use of computers in technical education.
c) Use of expert system in technical education.
d) By establishing radio stations at teaching universities, colleges.
e) By forming close circuit tv network among the university and different institutions with the well established institutes.
f) Creating a dedicated satellite system for educational needs.

Conclusion :

This paper reports on the necessity of revamping of technical education.In this paper it is shown that the present education pattern hampers the educational development of the nation and also here it is suggested how the revamping program should be planned so that it becomes more fruitful from student, faculty, society, industrialist point of view.

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