

CHALLENGES THAT FACE TECHNICAL EDUCATION, TODAY

* PROF. G.J.V.J. Rao

NOTE

This is the valedictory address of the XIX ISTE convention recently held at S.V.U. College of Engineering, Tirupati on 20-21 Dec., 1989 which was delivered by Prof. G.J.V.J. Rao, Chairman, Andhra Pradesh Council of Higher Education, Hyderabad.

Technical Education in our country today is confronting a number of challenges, crucial choices and very few options. The challenges are only too familiar to need repetition here. In spite of a phenomenal expansion of Technical Education in the last four decades, we have a severe shortage of skills in certain emerging areas on the one hand and on the other, there is a mis-match of skills of graduates and the needs of society. In addition, we have the serious problem of 'brain-drain' and the disturbing trend of unemployment of engineers. It is against this background that the crucial choices in front of the ISTE have to be examined.

The need of the hour in the technical education sector is modernisation. We cannot afford to stick to our old ways any longer. In order to be relevant, we have to be in tune with the changing times. Professional bodies like the ISTE have an important role to play in giving a meaningful and socially rele-

vant direction to the content and form of Technical Education in our country.

We are living in a world which has passed through the agricultural revolution and the industrial revolution. We are getting ready to step into an 'information age', an information society in which knowledge is really power. The industrial context which has shaped technology all along has changed beyond all recognition. Organizationally modern industry is in the grip of permanent revolution. While the manufacturing industry has declined, the new industries which have displaced it are knowledge intensive. Superior technology now confers such obvious and immediate commercial advantages that industry can no longer safely regard its relationship with the academy as one of master and servants. The scope of technology also has been progressively enlarged. Economics, management and psychology and other non-engineering disciplines have

Chairman, A. P. Council of Higher Education, Lakdikapool (Opp. A.G. Office), Hyderabad.

moved closer to the centre of technology's mission. This in turn, has stimulated the growth of closer links between technology and the professions. The present-day technology has drifted from its conventional image. It has become more intellectual in its orientation, less tied to the work-bench. Effective technology has become a more theoretical business. It has also become highly inter-disciplinary. It has long since burst the narrow banks of engineering and spread out across the wide plains of natural, social and human sciences.

The question is : How are we going to keep pace with the rapid advances registered by modern technology ? Even to stay where you are, you have to run fast. You cannot afford to remain indifferent to the breath-taking speed of the 'information revolution'. In other words, how are we going to discharge our obligations to ourselves as academics in the field and also our duty to the Nation?

Handicapped as we are by a structural dualism with a few islands of excellence in a mass of less than viable institutions, how are we going to bring about some kind of uniformity of standards by introducing 'Quality Control' in our institutions? We have the further distortion of a large number of underserved, neglected rural and remote areas while the urban areas are preferred for location of colleges. Far from pursuing excellence, we are charged with pursuing mediocrity. What is more, we are charged with having institutionalized 'mediocrity'. How, in this context, are we going to clear ourselves of these charges and bring about a qualitative change in favour of excellence in Technical Education? And how do we go about our work with inadequate resources?

The following are some of the important as-

pects of Technical Education which need our immediate attention :

- # Integrated approach to Technical Education from Diploma level to Degree and beyond. -
- # Man Power Planning & forecasting skill shortages -
- # Linkages and Market Orientation-
- # Modernization - updating - optimizing - sharing - relevant R & D-
- # Resource allocation based on priorities-
- # Teaching Methodology to be altered - problem - solving skills and self-learning activities need to be promoted-
- # Self employment as career option by encouraging entrepreneurship -
- # ISTE interface with industry-

Engineering is a problem solving profession. The aim of technical education, must therefore, be to prepare the students for a professionally productive life. Any valid approach to technical education must encourage development of motivation and skills for continuous independent learning. Technical Education of tomorrow must train professionals who have an inter-disciplinary approach to problem-solving. After all, all the real problems in society are inter-disciplinary.

The Technical Education system has to be redesigned and reorganised to produce a substantial percentage of self-propelled individuals who would be able to grow into any

new area and make their contributions.

When resources are scarce, it is advisable to allocate them on the basis of priorities rather than some-thing for every-body basis. It is increasingly clear that if priorities are not determined systematically and explicitly, they will continue to be determined intuitively, often in response to expence, and demands of special interest groups. Problem-oriented research projects of national importance may be identified in consultation with industry and national agencies and institutions encouraged to develop specialized research abilities in selected areas for undertaking such identified projects of national importance. Judicious allocation of specific responsibilities amongst the different institutions for industry-oriented R & D has to be prepared and adequate support provided for carrying out the tasks.

Several avenues are available for multiple usage of infrastructural facilities existing in technical education institutions. They include part-time evening courses, continuing education programmes, consultancy and testing services, and so on. Institutions should be given the freedom to utilise all these avenues. This will permit optimum utilisation of the available facilities and also help institutions to generate 'resources', which can be used for further infrastructural development. Institutions should be encouraged to offer a variety of programmes at different levels and through different forms involving a large number of students. Whenever necessary, institutions should be asked to increase their intake to the formal courses to the extent of 10 to 15% so that the same infrastructure can train more people with marginal inputs.

The role of the ISTE in bringing about a quali-

tative change in the Technical Education sector cannot be over emphasized. Those who really matter are already members of the ISTE. It is these professors and researchers who have to shape the destiny of Technical Education in our country.

Indian Academics are very good at planning. But when it comes to implementation of plans and programmes, success seems to elude us. Hence, the ISTE should play a catalytic role in ushering in the much-needed reform in the form and content of Technical Education in the Country.

History will not forgive us if we do not discharge our responsibility as aware academics in the profession of teaching.



GUIDELINES FOR AUTHORS

1. The article should be typewritten and in duplicate, accompanied by the author's brief biodata (not more than 100 words).
 2. The length of the article should normally not exceed 3000 words approximately.
 3. The article should be sent six weeks earlier than the Month of Publication of the Quarterly Journal which is published in January, April, July, and October of every year.
 4. The Synopsis of the article (not more than 300 words) should be sent immediately.
- * All correspondence to be addressed to -
Prof. N.V. Ratnalikar
"Sri-Niwas", B-8 Kasturba Society,
Vishrantwadi, Pune 411 015.
Phone : 662091