CONTINUING ENGINEERING EDUCATION PROJECT – AN EIGHTH PLAN PERSPECTIVE

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Abstract: *The paper attempts to explain the Government of India's initiative to provide opportunities for continuing engineering education to the working professionals through the Continuing Engineering Education Project. It briefly outlines the progress made in the last two years in this endeavour. The new challanges posed by the invasion of the emerging technologies and consequent need of keeping oneself abreast of the developments have been clearly brought out. The paper subsequerently proposes suitable measures taken in the Eighth Plan to meet these allenges.*

1.0 Need :

The world of today is facing a rapidly changing environment. These changes are more pronounced in the areas like micro-electronics, computers, robotics, computer aided design (CAD), Computer aided manufacturing (CAM), non-conventional sources of energy, Optical fibre based communication systems, Lasers and their applications, sophisticated instrumentation and control systems, resource optimisation, environmental protection etc.. In view of the knowledge explosion taking place, a person leaving the portals of an institute after acquiring a diploma/degree through formal engineering education will be deeply affected by the effect of obsolescence within a period of 5-10 years. In order to keep pace with the modern developments/changes, there is an imperative need for providing continuing engineering education / training to the technical personnel. A sound system of continuing education for the technical and professional manpower, should therefore, be developed to provide ample opportunities for this 'life-long learning'.

2.0 The Project :

To give impetus to the movement of continuing engineering education of working professionals in an organised manner, the Government of India, Ministry of Human Resource Development in pursuance of 'New Education Policy (1986)' and subsequent 'Pro-

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gramme of Actions' initiated a project in February 1988. This project was named as 'Continuing Engineering Education Project' for working professionals. The project aims at updating/upgrading the knowledge and skills of professionals/ vocationals working in industries and allied organisations. This is intended to be achieved by conducting short term courses and designing and developing relevant and useful course materials. The course material may be prepared for different levels viz. supervisory, engnineering or managerial, depending upon the target population. A snap survey was conducted early last year and a national survey (sectorwise) was carried out this year (1989) to identify the areas in which there is a need for such continuing education programmes. A number of reputed industries both in the public and private sectors were contacted and a list of titles for continuing education course was finalised. The Govt. of India, Ministry of Human Resources Development has entrusted the task of preparing the continuing education course materials to ten institutions in the country viz - four TTTIs, five IITs and the ISTE. The ISTE is also co-ordinating and monitoring the project at the national level. The funds for this project are being provided by the Central Government.

Need based course material is being prepared at the resource centres mentioned above. This material will be supplied to such organisations and institutions, engineering colleges/polytechnics as would like to run continuing education courses for different levels of technical manpower in industries on a self-supporting basis. A modest but systematic beginning in the field of Continuing Engineering Education for the working professionals has thus been made. In brief, the objectives of the Continuing Education project are :

i. assessing the futuristic needs of different sectors of the engineering profession.

ii. preparation of course material for continuing education.

iii. offering programmes at institutions, industries, professional societies.

iv. planning, implementing, co-ordinating monitoring and reviewing the impact of the programmes and applying corrective measures suitably.

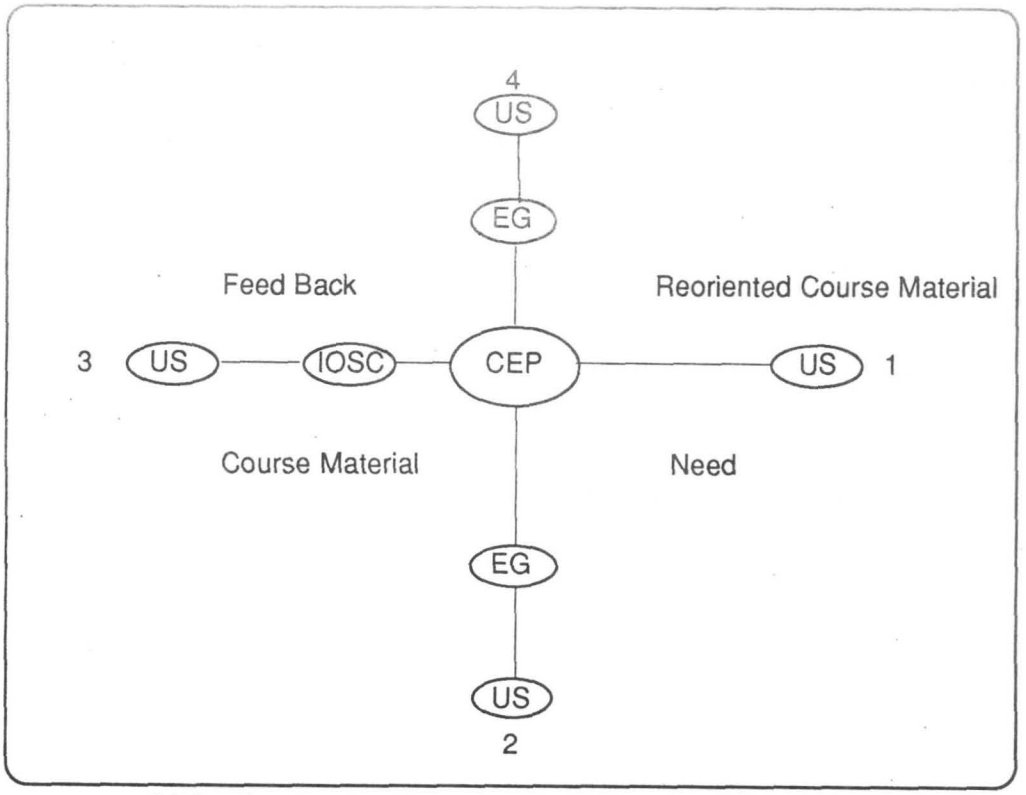
Unilever's great strength is its training systems. It teaches people not only how to be good at marketing and other specialised techniques, but also how to be good Unilever people. There is a Unilever way of behaving, a Unilever way getting on with other people, and a Unilever style of doing business that anybody who has ever dealt with Unilever recognises.

Wally Olins in
The Corporate Personality.

The secret may lie in what the Japanese call 'Continuous Trainibg'. This means, first, that every employee, very often up to and including top managers, keeps on training as a regular part of his job until he retires. This is in sharp contrast to our usual Western practice of training a man only when he has to acquire a new skill or move to a new position. Out training is promotion focussed; the Japanese traing is perfoprmance focused.

-Peter F. Drucker

The following diagram the methodology of operation of the Continuing Education Project. It provides for continuous cycle of interaction generating need based course materials and updating the knowledge / skills of working professionals.



CEP = Continuning Education Project

US = User System

EG = Expert Group

IOSC = Institute Organising Short-term Courses

3.0 Present Status :

The Indian Society for Technical Education has carried out a survey to find out the continuing education needs of the industries in different sectors. A questionnaire for eliciting information from user system for need based planning was sent to over 1500 industries and 50 institutions in the Public / Private sector. Many industries and their training divisions were also contacted personally. On the basis of the responses received about 800 areas have been identified out of which 300 titles have been prioritised for preparing course materials and organising continuing education programmes. Course

materials on about 50 titles have been prepared and several short term courses have been organised at several centres in the country in which more than 3500 working professionals have participated tilldate. The response from the industries has been very encouraging. It is expected that by the end of the 7th Plan around 100 course materials would be ready and more than 5000 working professionals would have participated in the continuing education programmes. Regional surveys are also being contemplated for better assessment of the needs of the industries and of the professionals working in these industries. Every year, a need analysis is being contemplated to be carried out to update the requirements and reorienting and revamping the courses that are being run.

4. Challenges Ahead :

Many industries have started using the course materials prepared under this project and many others are likely to follow suit. The industries are looking towards the project optimistically as they feel that their requirements of continuing education can be fulfilled through this project to a large extent. However, if figures are any indications, this is gigantic task. According to a rough estimate, the stock of engineers, technicians and managers in the country is more than 1.5 million. Assuming that each one of them would undergo one short term continuing education programme once in five years, it will be necessary to provide facilities for continuing education to the extent of 300,000 persons every year. These figures will go on swelling due to mushroom growth of large number of technical institutions. Normal traditional methods of continuing engineering education might not be able to meet this large demand. It will therefore become imperative to explore and exploit new methods of imparting continuing education such as through self-learning modules and distance education making full use of the electronic media. Needless to say that a productive professional technical work-force demands life-long learning on the job and ample opportunities must be provided for the same.

5. Eighth Plan Projections :

To meet the challenge posed by the emerging technologies and the technological transformation taking place, we are left with no option but to provide adequate, need based and well organised continuing education programmes to our working professionals. A working group at the national level was assigned the task of reviewing the project in its totality and suggesting suitable measures to be incorporated in the Eighth Plan Project Proposal. In this context, the group, after detailed deliberations, has suggested the following :

1. Centres for continuing education set up inall the TTTIs and IITs be further strengthened with more physical, financial and human resource inputs.

2. In addition to the present ten centres for preparation of course materials, some more centres be established for this purpose.

3. since conducting continuing education programmes all over the country is an uphill task, it is proposed to set up five ISTE Regional Centres at suitable places. These regional centres will focus on the conduct of the continuing education programmes after ascertaining the needs of the region and utilising the course materials already prepared. They will thus contribute significantly in the propogation of continuing education in their region.

4. Since it is not possible to cater to the entire demand of continuing education programmes run on 'contact or face to face' basis, it is advocated that 'Distance Education' made utilising self-learning modules could also be explored in the offerings of continuing education programmes. In one of the models of the operating distance education programme, the self-learning module could be made available to the participants at their working place. The participants can go through this module at their own pace and convenient time. Module expert can then be invited subsquently to clarify doubts, have interaction and lively discussions with the participants who are expected to gain in this process.

5. The importance and potentials of electronic media like Audio/Video tapes, films, televisions, computers have been duly recognised. It is recommended that these media be used liberally in the continuing education courses in addition to the print material. Package, therefore, should also be prepared learning heavily on different appropriate media.

6. Centres and departments of continuing education should also be established by the State Governments in their directorates / boards of technical education and selected engineering colleges / polytechnics respectively. They will closely interact with TTTIs, IITs, ISTE, AICTE and industries for the promotion of continuing engineering education in their region.

6. **Conclusion :**

It is hoped that at the end of the eighth plan the course material production will reach the mark of 1500 or so and about 50,000 professionals will benefit from continuing education programmes. Though it is a wishful thinking, it can certainly be transformed into reality, if all parties concerned endeavour to work in this direction with full favour and sufficient financial outlay if earmarked for this mission.

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: QUALITY :

Quality is never an accident; it is always the result of determined and directed activity, sincere effort, intelligent direction and skillful execution; it represents the wise choice amongst many and varied alternatives.