Executive Summary

The Department of Scientific and Industrial Research, Ministry of Science and Technology sponsored the study on `Status of Technology Management Education in Select Countries' to IIT Delhi. The key objective of the study was to carry out a comprehensive analysis of the status of education in Technology Management (TM) related subjects in the select countries covering full length degree programmes, courses/modules, executive programmes, research centres, industrial collaborations and extension activities.

The study was based on the data collected by survey method which included well-structured questionnaires, information available on the Internet and the printed brochures. The data has been analyzed university/institute-wise, country-wise subject-wise and in terms of areas of importance.

The study on TM education has brought out a profile of select programmes in three major regions, viz. North America, Europe, and Asia Pacific. The importance of TM in educational programmes was first recognized in North America, followed by Europe and Asia-Pacific. The area of TM has moved from a narrow focus on R&D Management to Strategic Technology Management and Innovation Management. Majority of the TM related degree programmes are at the postgraduate level as Master of Science or MBA programmes; very few institutes offer TM programmes at the undergraduate level.

The major areas of importance in these programmes are Management of Technology and Innovation, New Venture Management, Strategic Management of Technology, and Management of Technology Transfer.

The institutes also offer executive programmes as short/medium-term certificate programmes to long-term Executive Masters and Executive MBAs. Distance education in TM is also being explored to a limited extent. Some of the leading research centres in TM are ETH, Forrester Research, Harvard Business School, Imperial College Management School, INSEAD, London Business School,

National University of Singapore and University of Brighton. The extension activities in TM are taking place in the form of conferences, seminars and workshops. The most prominent professional association is `International Association of Management of Technology (IAMOT)'.

On the basis of the insights gained by the study, the key recommendations are made on the following points:

- Model for TM Education
- Global Network of Experts/Centres
- Short-term Programmes
- E-learning
- Reading Material
- Role of Professional Societies/Associations
- Industry-Institute Interaction

It is recommended, that in MS or MBA programmes on TM a modular design should be followed. The minimum required modules for MS as well as MBA programmes on TM are suggested. Apart from the full length degree programmes at the postgraduate level, it is recommended to introduce at least one three credit optional course on `Technology and Innovation Management' in all undergraduate engineering/technology programmes.

Further, it should be seen that the area of TM is very vast and there are specialized needs of the industry. Thus, there should be a balance of the general programmes and specialized industry based programmes to cover the whole gamut of TM functions. It is recommended to take up a micro study by a team with industry participation and carrying out indepth study by personal visits to select institutes to generate learnings for curriculum development and research on TM.

In order to derive best utilization of existing resources in the area of Technology Management, it is proposed that the various research centres and experts should be networked globally.

Short-term programmes on specific topics such as technology transfer agreements, negotiations, innovation models, venture capital financing etc. will be

more useful to senior managers rather than the degree programmes only. It is recommended to start a comprehensive e-learning programme on TM.

A TM book series project should be initiated to publish books on every major aspect of TM. The series should have a lead book that gives the overview of `Technology and Innovation Management' followed by books in specific areas. It is recommended that industry participation should be encouraged in the development of case studies.

Professional societies/associations can play a significant role in promoting TM education. It is recommended to organize a `TM Summit' in the year 2003 for the leaders in the profession in collaboration with associations such as AIMA and CII.

Industry-institute interaction can take place in various forms such as involvement of industry professionals in teaching TM courses, taking up joint research projects, case development, short-term programmes, conferences and seminars, professional societies/associations and so on. While propagating the TM concepts in industry, it is recommended to keep a special focus on small and medium enterprises (SMEs).

Further, to derive maximum benefit of the international experiences in TM education and research a provision should be made to continuously update the information about various programmes. This updation and the major recommendations made in this study could be implemented effectively by setting up a `National Resource Centre on Technology and Innovation Management'. Such a resource centre will provide the framework and coordination for TM education and research in the country with international linkages.