

Technology Management

Course Objectives

This course will expose the students the concept of technology management, nuances and issues in technology management and the decision making related to technology management. This subject will also help to acquaint the students with the role of technology and innovation in global industrial competition with latest trends and developments.

Syllabus

Technology, Technology Management, Technology Life Cycle, Technology Forecasting, Technology Acquisition, Technology Strategy and Competitiveness, Technology Adoption, Diffusion, and Absorption, Technology Based Innovation, Human Aspects in Technology Management, Social Issues in Technology Management.

Expected Outcome

After completing the course, the students are able to gain a fair understanding on contemporary topics in technology and innovation management. The course also provides insights on technical, human and social aspects of technology management.

References

1. P N Rastogi, Management of Technology and Innovation: Competing Through Technological Excellence, (Kindle Edition), SAGE Publications, Response Books. 2009
2. Tushman, M.L. and Anderson ,P. Managing Strategic Innovation & Change, New York: Oxford University Press, 2004.
3. Khurana, V. K., Management of Technology and Innovation, New Delhi: Ane Books, 2012
4. Narayanan, V. K, Managing Technology and Innovation for Competitive Advantage, Pearson Education, 2002
5. Ettile, J. E, Managing Innovation: New technology, New Products and New Services in a Global Economy, A Butterworth-Heinemann Title, 2006
6. Afuah, A. Innovation Management, Strategies, Implementation and Profits, Oxford University Press, 2009

COURSE PLAN

1 Introduction to Technology Management: Technology and Technology Management- Technology; Technology management, Evolution and Growth of Technology, Role and Significance of Technology Management, Impact of Technology on Society and Business- Technology and competition; Key issues in managing technological innovation, Forms of Technology- Process technology; Product technology.

2 Technology Acquisition and Technology Forecasting: Technology Acquisition, Alternatives for Acquiring New Technologies, New Technology, Management of Acquired Technology, Measures of Scale and Mechanisms for Acquiring Technologies- Economy of scale or Scale economy; Levels of scale; The measurement of scale; Factors affecting the choice of scale, Technology Forecasting: Technology Forecasting- Characteristics of technology forecasting ; Technology forecast method; Principles of technology forecasting, Technology Forecasting Process, Need and Role of Technology Forecasting, Forecasting Methods and Techniques, Planning and Forecasting.

First Internal Examination

3 Technology Strategy, Technology Adoption, Diffusion and Absorption and Competitiveness: Technology Strategy- Technology strategy and management; Elements of technology strategy, Innovation Management, Competitive Advantage- Components of competitive advantage; Creating competitive advantage using value chain, Technology Management Evaluation or Assessment, Technology Adoption, Diffusion, and Absorption: Technology Adoption, Technology Diffusion- of technology diffusion; Perspectives of innovation diffusion process, Technology Absorption- Role of technology absorption; Benefits of technology absorption; Constraints in technology absorption, Technology Package and Technological Dependence, Indian Experience in Technology Absorption Efforts, Issues Involved in the Management of Technology Absorption and Government Initiatives.

4 Technology Generation and Development: Technology Generation- Process; , Technology Development, Importance of Technology Generation and Development, Need for Technology Strategy, Importance of Research and Development (R&D)- Corporate research and product lifetimes; Production costs and R&D; Translation of R & D efforts to technology, Technology Transfer: Transfer of Technology, Models of Technology Transfer- Traditional technology transfer models; Qualitative technology transfer models, Technology Transfer Modes, Dimensions of Technology Transfer, Features of Technology Package, Routes of Technology Transfer, Technology Assessment: Technology Choice, Technology Assessment Process, Technology Leadership and Followership, Technology Concepts- Technology acquisition; Meaning of innovation and creativity; Innovation management.

Second Internal Examination

5 Human Aspects in Technology Management: Integration of People and Technology, Factors Considered in Technology Management- Organisational factors; Psychological factors, Organisational Structure and Technology, Social Issues in Technology Management: Social Issues, Technological Change and Industrial Relations- Implementation of rationalization and automation in India; Impact of technological change, Technology Assessment and Environmental Impact Analysis- Environmental impact analysis process- Guidelines on the scope of EIA; Issues in preparation of EIA report; Elements of the environmental problem.

Final Examination