

Annexure-H

Technology Innovation Management Syllabus

Section 1

Innovation, Entrepreneurship, and Technology Management

Focuses on innovation processes, entrepreneurship, and technology commercialisation.

Topics:

1. Innovation Fundamentals

- Concept, types, and sources of innovation
- Disruptive vs. incremental innovation
- Technology lifecycle and diffusion of innovation
- Open innovation and co-creation
- Innovation ecosystem

2. Technology Management

- Technology forecasting and assessment
- R&D management and technology transfer
- Intellectual Property Rights (IPR), patents, and licensing
- Product design, development, and prototyping

3. Entrepreneurship & Commercialisation

- Technology-based entrepreneurship
- Business model innovation (e.g., Lean Canvas, BMC)
- Startup ecosystems and incubation
- Funding and venture capital basics
- Policy framework for innovation in India (Startup India, Make in India, Atmanirbhar Bharat)

Section 2

General Awareness in Science, Technology & Policy

Tests awareness of technological trends, national missions, and policy contexts.

Topics:

1. Contemporary Developments

- National innovation policies and initiatives
- Sustainable technology and circular economy
- Industry 4.0, smart manufacturing
- Digital transformation in sectors

2. Global and National Context

- Major research and innovation bodies (DST, DBT, NITI Aayog, etc.)
- Technology and development goals (SDGs, Viksit Bharat@2047)
- Case studies of successful Indian technology innovations

Suggested Reading Material

Technology and Innovation Management

- Tidd, J., & Bessant, J. (2021). *Managing innovation: Integrating technological, market, and organizational change* (7th ed.). Wiley.
- Trott, P. (2017). *Innovation management and new product development* (6th ed.). Pearson Education.
- Schilling, M. A. (2022). *Strategic management of technological innovation* (7th ed.). McGraw-Hill Education.
- Burgelman, R. A., Christensen, C. M., & Wheelwright, S. C. (2019). *Strategic management of technology and innovation* (7th ed.). McGraw-Hill Education.
- Dodgson, M., Gann, D., & Salter, A. (2008). *The management of technological innovation: Strategy and practice* (2nd ed.). Oxford University Press.
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- Utterback, J. M. (1994). *Mastering the dynamics of innovation: How companies can seize opportunities in the face of technological change*. Harvard Business School Press.

Entrepreneurship and Technology Commercialization

- Timmons, J. A., & Spinelli, S. (2019). *New venture creation: Entrepreneurship for the 21st century* (10th ed.). McGraw-Hill Education.

- Kuratko, D. F. (2021). *Entrepreneurship: Theory, process, and practice* (11th ed.). Cengage Learning.
- Hisrich, R. D., Peters, M. P., & Shepherd, D. A. (2020). *Entrepreneurship* (11th ed.). McGraw-Hill Education.
- Neck, H. M., Neck, C. P., & Murray, E. L. (2018). *Entrepreneurship: The practice and mindset*. SAGE Publications.
- Drucker, P. F. (2006). *Innovation and entrepreneurship: Practice and principles*. HarperBusiness.
- Osterwalder, A., Pigneur, Y., Bernarda, G., & Smith, A. (2014). *Value proposition design: How to create products and services customers want*. Wiley.
- Blank, S., & Dorf, B. (2020). *The startup owner's manual: The step-by-step guide for building a great company*. Wiley.

Technology Policy, Innovation Ecosystems, and Sustainability

- Lundvall, B. Å. (2010). *National systems of innovation: Toward a theory of innovation and interactive learning*. Anthem Press.
- Edquist, C. (Ed.). (2019). *Systems of innovation: Technologies, institutions, and organizations*. Routledge.
- Chesbrough, H. W. (2020). *Open innovation results: Going beyond the hype and getting down to business*. Oxford University Press.
- Von Hippel, E. (2017). *Free innovation*. MIT Press.
- Freeman, C. (1987). *Technology policy and economic performance: Lessons from Japan*. Pinter Publishers.
- Stokes, D. E. (1997). *Pasteur's quadrant: Basic science and technological innovation*. Brookings Institution Press.
- World Economic Forum. (2023). *The global innovation index*. WIPO.
- Government of India. (2020). *National Innovation and Startup Policy (NISIP)*. Ministry of Education, Government of India.