

# GUJARAT TECHNOLOGICAL UNIVERSITY

## MECHANICAL (INDUSTRIAL ENGINEERING) (46)

### STRATEGIC TECHNOLOGY MANAGEMENT

**SUBJECT CODE: 2734605**

M.E. 3<sup>rd</sup> SEMESTER

**Type of course:** Major Elective - IV

**Prerequisite:** Nil

**Rationale:** The aim of this course is to make students understand and appreciate the importance of strategic management in the industrial and business systems. Students can develop understanding of strategic management processes. The course is also aimed at making students aware of the aspects of technology management.

**Teaching and Examination Scheme:**

Teaching Scheme			Credits	Examination Marks						Total Marks
L	T	P		Theory Marks		Practical Marks				
			ESE (E)	PA (M)	ESE (V)		PA (I)			
					ESE	OEP	PA	RP		
3	2#	2	5	70	30	20	10	10	10	150

**Content:**

Sr. No.	Content	Total Hrs	% Weightage
<b>1</b>	<b>Introduction to Strategic Management:</b> Basic Concept of Strategic Management, Vision, Mission, Objectives, Business Policy, Corporate Strategy, Impact of globalization, internet and E-Commerce, Basic Model of Strategic Management, Strategic Decision Making, Role of Strategic Management in Global Competitiveness.	08	20
<b>2</b>	<b>Strategic Management Practices:</b> SWOT Analysis, Various Corporate Strategies: Growth/ Expansion, Diversification, Stability, Retrenchment & Combination Strategy. Process of Strategic Planning, Stages of corporate development, Corporate Restructuring, Mergers & Acquisitions, Strategic Alliances, Portfolio Analysis, Corporate Parenting, BCG Model, Porters Model.	08	20
<b>3</b>	<b>Introduction to Technology Management:</b> Technology and competition, technology acquisition. Integration of strategic planning and technology planning. Key performance factors for technology management, Understanding Management of Technology, Key concepts – importance – issues. Technology development and society-Technology and Corporate growth, Technology forecasting, Technology innovation and applied research, Technology transfer- Process of technological change – Innovation technology evaluation, Adoption and diffusion.	12	20
<b>4</b>	<b>Technology Strategy:</b> Technology intelligence – collaborative mode, Appropriation of technology – Deployment in new products, simultaneous engineering, Development in the value chain.	08	20
<b>5</b>	<b>Managing Technology (A):</b> Technology evaluation and financing – Evaluation of R & D projects, Budgeting and cost control changing role	05	10

	of R & D.		
<b>6</b>	<b>Managing Technology (B):</b> Management of Manufacturing technology- Product development- Market development – corporate cultures – technology audits.	04	10

### Reference Books:

- 1 Managing Engineering Technology, Babcock D.L. Prentice Hall.
- 2 Concepts in Strategic Management and Business Policy, Wheelen Thomas, Hunger J. David and Rangarajan Krish, Pearson Education
- 3 Strategic Management of Technology and Innovation, Burgelman et.al Tata McGraw Hill
- 4 Cases in Strategic Management, Budhiraja S.B. and Athreya M.B. -, Tata Mc Graw Hill
- 5 Managing Technology and Innovation for competitive Advantage, Narayanan U.K. Pearson Education, Asia.
- 6 Managing Technology – competing Through New Ventures, Innovation and Corporate Research, Betz F., Prentice Hall.
- 7 Managing Technology - The Strategic Vies, Lowell W. Steele, McGraw Hill.
- 8 Business Policy and Strategic Management, Kazmi Azar - Tata Mc Graw Hill
- 9 Strategic Management: Concepts and Cases, Thomson, Tata Mc Graw Hill
- 10 Business Policy and Strategy, Cliff Bowman, Prentice Hall of India
- 11 Strategic Technology management, Cleland and Bursic Amacom, Newyork.
- 12 Technology Strategy and the Firm, Mark Dodgson, Longman.

### Course Outcome:

After learning the course the students should be able to:

- 1) Understand the concept of strategic management.
- 2) Appreciate the importance of strategic management in overall success of any business/industrial sector.
- 3) Understand different processes of strategic management.
- 4) Understand the concept of technology management.
- 5) Know the processes of technology management.
- 6) Understand how to manage technology.

### List of Tutorials:

Case studies and research papers analysis on the topics from syllabus.

### Design based Problems (DP)/Open Ended Problem:

Students (in a group of 2 to 3) will take up one industrial case study of successful strategic technology management initiative, analyze the same and present their understanding and learning out of the same.

**Review Presentation (RP):** The concerned faculty member shall provide the list of peer reviewed Journals and Tier-I and Tier-II Conferences relating to the subject (or relating to the area of thesis for seminar) to the students in the beginning of the semester. The same list will be uploaded on GTU website during the first two weeks of the start of the semester. Every student or a group of students shall critically study 2 papers, integrate the details and make presentation in the last two weeks of the semester. The GTU marks entry portal will allow entry of marks only after uploading of the best 3 presentations. A unique id number will be generated only after uploading the presentations. Thereafter the entry of marks will be allowed. The best 3 presentations of each college will be uploaded on GTU website.