

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. Mechanical (Industrial Engineering) (Branch Code - 46)

Year – II (Semester – IV) (W.E.F. January 2014)

Subject: Productivity Engineering & Management (744601)

Course Content:

Sr. No.	Topic	Hours
1.	Introduction: Productivity basic concepts: Partial, Total Factor productivity, Types of productivity measure: Single, Multi-factor, productivity cycle, Productivity: Some perspectives.	08
2.	Productivity Models: Kendrick-creamer model, Craig-Harris model, American productivity center model, Productivity accounting model,	06
3.	Productivity Measurement Models: Models of productivity measurement: Production function models, Financial ratios, Production based models, Product oriented models, Surrogate models, Economic based model, Models based on systems approach, Productivity measurement at International, National and Organizational level, total productivity models, Productivity management in manufacturing and service sector, Productivity Evaluation models, Productivity improvement models and techniques	12
4.	Productivity Measurement: A Conceptual framework: MBO and Productivity measurement, Key Performance Area in MBO, Performance Objectives-Productivity (PO-P) Model, its methodology, KPA's, Productivity indices.	06
5.	Productivity Measurement in Manufacturing Sector: Productivity Measurement in Small Size, Medium Size and in Large Size Organization considering KPA's, performance objectives and productivity indices calculations for these case to be studied.	08
6.	PO-P application: Productivity Measurement in Service Sector: Need for measuring productivity in service sector, Productivity of an R & D System & Educational institution, methodology.	06
7.	Productivity Management and Implementation Strategies: Productivity policy, Productivity measurement evaluation, Productivity improvement strategies: Organizational, Human and Technological.	05
8.	Introduction to Business Process reengineering: Basics of BPR, Need for reengineering, Benefits of BPR, Breakthrough	06

	reengineering model, BPR guiding principles, Key target of BPR, BPR in manufacturing industries.	
9.	BPR Implementation Methodology: BPR methodology, different phases of BPR, BPR methodology selection guidelines, different BPR methodologies and its comparison, BPR success factors, Barriers to BPR, BPR and relevant technologies.	10
10.	Green Productivity: Green productivity and ways to measure green productivity, Feedback tools and system, Integrated Management of Productivity Activities (IMPACT Model), Productivity Indicators, Integrated Approach to Productivity Measurement.	05
		72

Term Work:

The term work shall be based on the topics mentioned above.

Practical / Viva:

The candidate shall be examined on the basis of term-work.

Text Book:

1. Prem Vrat, Sardana, G. D. and Sahay, B. S, Productivity Management - A Systems Approach, Narosa Publishing House, New Delhi, 1998.
2. R. Radhakrishnan, S. Balasubramanian, Business Process Reengineering: Text and Cases, PHI Learning Private Limited, New Delhi, 2011.

References:

1. Sumanth, David J., Productivity Engineering and Management, Tata McGraw Hill, New Delhi, 1990.
2. Rastogi, P. N. Re-Engineering and Re-inventing the Enterprise, Wheeler pub. New Delhi, 1995.
3. A Measurement Guide to Green Productivity - 50 Powerful Tools to Grow your Triple Bottom Line, Asian Productivity Organization (APO), Tokyo, 2003.
4. Productivity Measurement in the Service Sector, Asian Productivity Organization (APO), Tokyo, 2001.
5. Productivity Measurement in the Retail And Food Industry, Asian Productivity Organization (APO), Tokyo, 2012.
6. Measuring Productivity, OECD Manual, Measurement of Aggregate and Industry Level Productivity Growth, www.sourceOECD.org
7. A Guide to Productivity Measurement, SPRING Singapore, 2011