

Industrial Engineering and Enterprise Resource Planning

B.E. Sem. VIII [MECH]

EVALUATION SYSTEM

	Time	Marks
Theory Exam	3 Hrs.	100
Practical Exam	–	–
Oral Exam	–	–
Term Work	–	25

SYLLABUS

1. Industrial Engineering

Introduction

Introduction to industrial engineering, history and contribution to industrial engineering, industrial engineering approach, techniques of industrial engineering, objectives of industrial engineering, system approach and industrial engineering, definition and concept of productivity, productivity measures, factors influencing productivity, productivity improvement techniques.

2. Work Study & Ergonomics

Work Study: Definition and objectives, importance and advantages, work study procedure.

Method Study: Definition and objectives, scope and steps involved in method study, job selection, recording techniques, critical examination, development and selection of improved method, motion economy principles, installation and maintenance of proposed method.

Work Measurement: Definition and objectives, techniques of work measurement, steps involved in work measurement, types of elements, time study equipments, performance rating and allowances, computation of standard time, predetermined motion time standards(PMTS)

Ergonomics: Definition and objectives of human engineering, man-machine systems and their aspects and relationship with productivity, human factors affected by environment, methods to improve work environment. **Evaluation of cultural fit on mergers and acquisitions of business enterprises.**

3. Value Engineering

Definition and meaning of Value engineering, value analysis and value engineering, use of value engineering, steps in value engineering, principles of value engineering.

4. Resource Utilization

Inventory Management: Definition, scope and objectives, economics of inventory management, deterministic models in inventory management

Facility Planning: Objectives and scope, location of facilities, types of layouts, layout design techniques, assembly line balancing, and computer packages for layout analysis.

Statistical Quality Control: Cost of quality, quality specification, need of SQC, Concept of variation, central tendency theorem, acceptance sampling, control charts for variables, control charts for attributes, TQM. WASTE MANAGEMENT - Definition and objectives, types of wastes, waste and productivity, waste and environment, waste reduction techniques, JIT for waste reduction.

5. Computers In Industrial Engineering

Need of computers in industrial engineering, development of integrated systems, sharing of data and information, advantages of integrated systems, principles of integrated system design, Introduction to MRP-I, MRP-II, JIT, BPR, SCM, EPR, Lean manufacturing, Agile manufacturing, etc.

6. Enterprise Resource Planning

ERP- Conceptual overview, Critical components, Structure, Evolution and Architecture of ERP, Best Practices and Business process reengineering issues in ERP, ERP- Overview of functional modules

- (i) Manufacturing and Purchase Module: A functional overview
- (ii) Finance Module-A functional overview
- (iii) Sales & Distribution Module-A functional Overview

ERP-Implementation methodologies, Success and failure cases, ERP Audit, Future of ERP, ERP systems in India, Introduction to ERP software.

SAP/3.0 : Technical module and functional module, ABAP and BASIS as technical module, Production planning, material management, sales and distribution, finance and controlling, plant maintenance , quality management, etc 11 modules in functional module. **Information technology and ERP systems in Mergers & Acquisitions of business enterprises, post merger and ERP systems**

Reference Books :

1. Management A Global Perspective, 10th Edition, (*Heinz Wehrich, Harold, Koontz*) Tata McGraw Hill Publishing Company Ltd ,International Edition.
2. Production and Operation Management (*Chase, Aquilano & Jacks*) Tata McGraw Hill Publishing Company Ltd
3. Time and Motion Study, Ralph M. Barnes.
4. Total Quality management (*J.S. Oakland*)
5. Work Study and Ergonomics (*H.S. Sham*) Dhanpatrai & Sons
6. ERP and beyond integrating your entire organization (*Gang A. LangenWalter*) The St. Lucas Press/ Apics Series on resources management
7. Enterprise Resource Planning (*Alexis Leon*) Tata McGraw Hill Publishing Company Ltd
8. E- Business & ERP Transforming the Enterprise (*Grant Norris, James R. Hurley, Kenneth M. Hurtley John R. D., John D. B.*) Wiley
9. Plant layout, Facilities planning (*M. Apple*)
10. TQM (Total Quality management) (*Besterfield*)
11. Business process reengineering Myths & Realities (*Colen Coulsan*) Thomson press
12. Business Process redesign A View From the inside (*Ashley , Bragenza, Andrew Myers*) International Thomson Business Press
13. ERP, (*Singla*) Cengage Learning.

