III B.TECH - II Semester

INDUSTRIAL ENGINEERING & MANAGEMENT

Course code: ME6T5 **Credits: 3**
Lecture: 3 periods/week **Internal assessment: 30marks**
Practice: 1 period/week **Semester end examination: 70 marks**

COURSE OBJECTIVES:

- Understand fundamental functions of management
- Get the knowledge of choosing best location for plants
- Know the application of tools of operation management.
- Identify the statistical techniques to improve the quality

COURSE OUTCOMES:

Upon completion of this course the student will be able to:

1. Describe the role and responsibilities of management and the organizational Structures
2. Explain the leadership qualities and concept of plant layout.
3. Apply different quality control techniques
4. Discuss various operations management Techniques
5. Solve operations management and project management problems

UNIT I

Introduction: Definition of Industrial Engineering, Applications, Role of Industrial Engineer, Quantitative tools of IE, Functions of Management, Taylor's Scientific Management, Fayol's Principles of Management, Douglas Mc-Gregor's Theory X and Theory Y, Hertzberg's Two Factor Theory of Motivation, Maslow's Hierarchy of Human Needs.

UNITII

ORGANISATIONAL STRUCTURES: Basic concepts related to Organization – Depart mentation and Decentralization, Flat and Tall organizations, Organizational chart, Line organization, Line and staff organization, functional organization

LEADER SHIP: Introduction, Definition, Types of leadership based on authority- their area of applicability and suitability, advantages and limitations, Traits approach to leadership

PLANT LOCATION: Definition, factors affecting the plant location, comparison of rural and urban sites. Plant Layout – definition, objectives, types of production, types of plant layout – various data analyzing forms-travel chart.

UNIT III

INSPECTION AND QUALITY CONTROL: Types of inspections - Statistical Quality Control-techniques-variables and attributes-assignable and non-assignable causes- variable control charts, and R charts, attributes control charts, p charts and c charts. Acceptance sampling- Single Sampling-OC curves. Introduction to TQM-Quality Circles, ISO 9000 series procedures.

UNIT IV

WORK STUDY: Definition, objectives, method study - definition, objectives, steps involved- various types of associated charts-out line process charts, flow process charts, two handed process charts and SIMO charts- difference between micro motion and memo motion studies.

TIME STUDY: definition, time study, steps involved-equipment, different methods of performance rating- allowances, standard time calculation.

UNITV

PROJECT MANAGEMENT: Network modeling, Probabilistic model-various types of activity times estimation, programme evaluation review techniques (PERT), probability of completing the project, deterministic model- critical path method (CPM), critical path calculation, crashing of simple of networks.

Learning Resources

Text Books:

1. O.P. Khanna, "Industrial Engineering and Management", DhanpatRai
2. T. R. Banga, S. C. Sharma, N. K. Agarwal, "Industrial Engineering and Management Science" Khanna Publishers.

Reference Books:

1. PannerSelvam, Production and Operations Management, PHI, 2004.
2. Ralph M Barnes, Motion and Time Studies, John Wiley and Sons, 2004.
3. Chase, Jacobs, Aquilano, Operations Management, TMH 10th Edition, 2003.
4. L.S.Srinath, PERT / CPM, affiliate East-West Press, New Delhi, 2000.
5. Phillip Kotler, Marketing Management, Pearson, 2004.
6. S. Bhaskar, "Management Science" Anuradha Publications.