

## 4/4 B.Tech. EIGHTH SEMESTER

**AE8T1          INDUSTRIAL ENGINEERING AND MANAGEMENT          Credits: 3**

**Lecture: 3 periods/week**

**Internal assessment: 30 marks**

**Tutorial: 1 periods/week**

**Semester end examination: 70 marks**

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### **Objectives:**

1. The main objective of this course is to provide in depth coverage and applications of Industrial management to complex real world systems. Also the main focus of this course is to make the students understand & get acquainted with industrial management function in both manufacturing & service organizations.
2. The main intention of this course is to investigate the relationship of Industrial management with other functional areas including marketing, accounting, finance, engineering, personal management, Project management etc. Ultimately the main emphasis of this course is to motivate & encourage the students and develop critical thinking and problem solving capacity, improve communication skills, Team spirit and diversity.

### **Learning outcomes:**

At the end of course the students will be able to:

1. Describe the role and responsibilities of management in organization
2. Differentiate the structures of various organization systems
3. Demonstrate the leadership qualities.
4. Solve operations and project management problems
5. Apply different quality control techniques

### **Pre-Requisites: MEFA**

#### **UNIT-I**

CONCEPTS OF MANAGEMENT AND ORGANISATION – Functions of Management – Evolution of Management Thought: Taylor's Scientific Management, Fayol's Principles of Management, Douglas Mc- Gregor's Theory X and Theory Y, Mayo's Hawthorne Experiments, Hertzberg's Two Factor Theory of Motivation, Maslow's Hierarchy of Human Needs – Systems Approach to Management.

## **UNIT-II**

**DESIGNING ORGANISATIONAL STRUCTURES:** Basic concepts related to Organisation - Departmentation and Decentralisation, Types of mechanistic and organic structures of organization (Line organization, Line and staff organization, functional organization, Committee organization, matrix organization, Virtual Organisation, Cellular Organisation, team structure, boundary less organization, inverted pyramid structure, lean and flat organization structure) and their merits, demerits and suitability.

## **UNIT-III**

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

## **UNIT-IV**

**PLANT LOCATION,** definition, factors affecting the plant location, comparison of rural and urban sites-methods for selection of plant- Matrix approach. Plant Layout – definition, objectives, types of production, types of plant layout – various data analyzing forms-travel chart.

## **UNIT-V**

**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. Work measurement- definition, time study, steps involved-equipment, different methods of performance rating- allowances, standard time calculation.

## **UNIT-VI**

**INTRODUCTION TO PERT / CPM :**Project management, network modeling-probabilistic model, various types of activity times estimation-programme evaluation review techniques- Critical Path-probability of completing the project, deterministic model, critical path method (CPM)-critical path calculation-crashing of simple of networks.

## **UNIT-VII**

**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 plan- single sampling and double sampling plans-OC curves. Introduction to TQM-Quality Circles, ISO 9000 series procedures

## **UNIT-VIII**

INTRODUCTION TO HUMAN RESOURCE MANAGEMENT, Functions of HRM, Job Evaluation, different types of evaluation methods. Job description, Merit Rating.- difference with job evaluation, different methods of merit ratings, wage incentives, different types of wage incentive schemes. Marketing, marketing vs selling, marketing mix, product life cycle

### **Learning resources**

#### **Text books:**

1. Harold T. Amrine, "Manufacturing Organization and Management", Pearson, 2nd Edition, 2004.
2. O.P. Khanna, "Industrial Engineering and Management", Dhanpat Rai & Sons, 1980.

#### **References:**

1. Stoner, Freeman, Gilbert, "Management", 6th Edition, Pearson Education, New Delhi, 2005.
2. Panner Selvam, "Production and Operations Management", PHI, 2004.
3. Dr. C. Nadha Muni Reddy and Dr. K. Vijaya Kumar Reddy, "Reliability Engineering & Quality Engineering", Galgotia Publications, Pvt., Limited.
4. Ralph M. Barnes, "Motion and Time Studies", John Wiley & Sons, 2004.
5. Chase, Jacobs, Aquilano, "Operations Management", TMH publishers, 10th Edition, 2003.
6. L. S. Srinath, "PERT / CPM", affiliate East-West Press, New Delhi, 2000.
7. Gary Dessler, "Human Resource Management", Pearson Education Asia, 2002.
8. Phillip Kotler, "Marketing Management", Pearson Education, 2004