INDUSTRIAL ENGINEERING AND ERGONOMICS

Subject Code	**: 10ME842**	**IA Marks**	**: 25**
Hours/Week	**: 04**	**Exam Hours**	**: 03**
Total Hours	**: 52**	**Exam Marks**	**: 100**

PART - A

UNIT - 1

Productivity & Work Study: Definition of productivity, factors affecting productivity, definition, objective & scope of work study, human factors in work study, work study & management, work study & supervisor, work study &worker.

06 Hours

UNIT - 2

Method Study: Definition, objective & scope, charts to record movements in shop, process charts, flow process charts, Multiple activity charts, two handed process charts, SIMO chart, principles of motion economy.

08 Hours

UNIT - 3

Work Measurement: Definition, objectives, techniques of work measurement, work sampling, need of confidence levels, sample size determination, random observation with simple problems

06 Hours

UNIT - 4

Time Study: Definition, time study equipments, selection of jobs, steps in time study, breaking jobs into elements, recording information, rating, standard performance, scales of rating, factors affecting rate of working, allowances, standard time determination.

06 Hours

PART – B

UNIT - 5

Introduction To Industrial Design: elements of design structure for industrial design in engineering application in modern manufacturing systems.

Ergonomics and Industrial Design: Introduction, general approach to the man-machine relationship, workstation design-working position.

08 Hours

UNIT - 6

Visual Effects Of Line And Form: The mechanics of seeing-psychology of seeing general influences of line and form.

06 Hours

UNIT - 7

Color Models: RGB, CMY, HSV, Color and light, color and objects-color and the eye-color consistency-color terms reactions to color and color continuation-color on engineering equipments.

06 Hours

UNIT - 8

Aesthetic Concepts: Concept of unity-concept of order with variety-concept of purpose style and environment –Aesthetic expressions. Style –components of style house style, observation style in capital goods, case study.

06 Hours

TEXT BOOKS:

1. **Work study,** ILO, 3rd edition, 2006
2. **Human Factor Engineering**: Sanders & McCormick, 7th Ed., McGraw Hill Publications.

REFERENCE BOOKS:

1. **Applied Ergonomics Hand Book,** Brain Shakel, Butterworth Scientific, London 1988
2. **Introduction to Ergonomics,** R. C. Bridger, McGraw Hill Publications.
3. **Industrial Design for Engineers,** Mayall W. H. London Hiffee Books Ltd., 1988
4. **Work Study & Ergonomics,** Suresh Dalela & Saurabh, standard publishers & distributors,1999