ME284: Industrial Engineering

Teaching Scheme			Credits	Marks Distribution				Total Marks
				Theory Marks		Practical Marks		
L	T	P	C	ESE	CE	ESE	CE	
3	0	0	3	70	30	0	0	100

Course Content:

Sr. No.	Topics	Teaching Hrs.
1	**Plant Location Selection and Layout:** Nature of location decision, Importance of plant location, Dynamic nature of plant location, Choice of site for selection, Comparison of location Principles factors governing flow pattern, travel chart, analytical tools of plant layout, Quantitative methods of plant layout: CRAFT and CORELAP, Relationship diagrams.	08
2	**Material handling:** Principles of Material handling, Types of Material handling, Selection of Material handling equipment.	03
3	**Productivity:** Definition of productivity, application and advantages of productivity improvement tools, reasons for increase and decreases in productivity.	03
4	**Work Study:** Areas of application of work study in industry, Reaction of management and labor to work study. Method Study: Objectives and procedure for methods analysis, Recording techniques: String Diagram, Operations Process Chart, Flow Process Chart, Flow diagram, Man-Machine, Multiple Activity Chart, Travel Chart, and Two Handed process chart, Therbligs, Micro-motion and macro-motion study: Principles of motion economy, SIMO chart, Normal work areas and work place design. Work Measurement: Objectives, Work measurement techniques – time study, work sampling, pre-determined motion time standards (PMTS) Determination of time standards.	10

5	**Job Evaluation and Wage Plan:**	05
	Objective, Methods of job evaluation, job evaluation procedure, merit rating (Performance appraisal), method of merit rating, wage and wage incentive plans, Non monitory incentives.	
6	**Maintenance:**	07
	Basic Principles of maintenance planning, Objectives and principles of planned maintenance activity, Importance and benefits of sound Maintenance systems, Reliability and machine availability, MTBF, MTTR and MWT, Factors of availability, Maintenance economics. Maintenance categories, Comparative merits of each category, maintenance schedules, repair cycle, Over all Equipment Effectiveness (O.E.E).	
7	**Ergonomics:**	04
	Scope and objectives of ergonomics, Man-machine interface, anthropometry, Application of human factors in engineering, Work place design.	
	Total Hrs.	**40**

Reference Books:

1. Barnes, R.L., "*Motion and Time Study, Design & Measurement of Work"*, 7th edition, John Wiley & Sons, New York, 1980.
2. *"Work study"*, International Labour Organisation (ILO).
3. Currie R.M, "*Work Study"*, ELBS & Pitman, London, 1977.
4. M. Mahajan, "*Industrial Engineering and Production Management"*, Dhanpat Rai & Sons.
5. Srivastava S.K., "*Industrial Maintenance Management"*, S. Chand & company.
6. Martand Telsang, "*Industrial Engineering and Production Management"*, S Chand & company.
7. Banga and Sharma, "*Industrial Engineering and Production Management"*, Khanna Publishers.