4042 5044 - INDUSTRIAL ENGINEERING

Teaching Schedule Per Week			Progressive Assessment		Examination Schedule (Marks)			
					Theory		Practical Ex.	Total
Lectures	Practical	Credits						
3	2	5	25	25	3 Hrs.	100	25/OR	175 ~~150~~
Pre-requisite		Source						
		MEC						

Semester	Theory	Test	Total	TW	PR	Gr Total
	75	25	100	25	50	175

Rationale: Any technician comes across [illegible] and control are one of the basic activities that determine the effectiveness of a production enterprise. Technicians engaged in various industrial fields should therefore have a basic knowledge of the various techniques employed in achieving the best results in an industry. The judicious use of the resources in an industry requires the knowledge of Industrial Engineering. The course is designed to develop in the students the necessary abilities to apply principles of work study in selecting the most economical method for execution or work resulting in reduction of wastage and also of manufacturing cost.

OBJECTIVES:

1. T o know the basic fundamentals of production planning and control.
2. To study various ways in improving productivity of various industrial enterprises.
3. To study the principles of method study
4. To study the principles of work measurement.

COURSE CONTENTS	Hrs.	Mks
1. PROCESS ENGINEERING 1. Concept of process engineering: Functions of process engineering, General manufacturing process, Organisation chart, Product engineering, Process planning and selection, Operation planning 2. PROCESS PLANNING: 1.Concept of process planning, 2 Factors affecting planning such as size and form of material. 3. Processing method, 4 Choice of plant layout, 5 Assembly process, 6 Assembly charts, 3. MACHINE CAPACITY AND SELECTION Concept of capacity, Individual machine capacity, Plant capacity, Balancing plant capacity, Relationship between process and machine selection., Basic factors in selection of machines, Selection among alternatives	8	14
2. PRODUCTION PLANNING & CONTROL Need for P.P.C., Effect and advantages, Functions of P.P.C. such as planning, scheduling, routing, despatching, expediting, inspection and evaluation.	4	10
3. PRODUCTION SYSTEMS Types of production, Nature and need of a factory production system., Types of manufacturing systems-job, batch and continuous types.	3	8
4. TOOLING TECHNIQUES Principles of jigs and fixtures, Simple types of jigs and fixtures, Types of locations Clampings, Supports, Positioning, Guiding of tools	6	12
5. PRODUCTIVITY Concept of productivity, Effect of improving the standard of living, Modes of improving through various roles, Resources Management, Total time of a job, Work content added by various means, Management techniques to reduce ineffective time	4	8
6. WORK STUDY Concept of work study, Means to increase productivity, Purpose of work study, Work study techniques, Work study procedure, Roles played by different cadres in work study, Working conditions and safety.	5	12
7. METHODS STUDY Concept and definition of method study, Analysis approach, Recording, Method study activities, Method study symbols, Recording techniques, Process recording methods, Cyclograph and chronocyclograph, Micromotion study, Therbligs-elements of movement, Procedure for film analysis, Principles of motion economy, Physical movements, Work place arrangementsm, Design of tools, containers and equipment, Tool supports and Holders, Develop and defiite new methods, Practical considerations, Installing and maintaining new methods	9	18

8. WORK MEASUREMENT 9 18

Basic concepts of work measurement, Work measurement procedure, Time study and job selection, Selection of worker, Methods of timing, Predetermined motion time and systems, Method- time measurement, Performance rating and computation of standard, time-basic time and allowance, Job evaluation and merit rating Work sampling

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PRACTICALS : - Assignments on

1. Limbalancing & plant capacity 2 turns
2. Plant layout 2 turns
3. Simple sizs & fixtures 3 turns
4. Method study 3 turns
5. Time measurement 3 turns
6. Work sampling 3 turns

REFERENCE BOOKS

1. Production Planning and Control by Samuel Eilon
2. Production Technology by R.K. Jain
3. Jigs and Fixtures by Kempster
4. Introduction to work study by Delela
5. Industrial Engineering by R.K. Jain, Awate Chanawala, Patel Bhandarker, Srinivasan.