

5064 - MATERIAL HANDLING SYSTEMS DESIGN										
Teaching Schedule Per Week			Progressive Assessment		Examination Schedule (Marks)					
Lectures	Practical	Credits			Theory		Practical Ex.		Total	
3	2	5	25	25	3 Hrs	100	25		175	
Pre-requisite		Source			Theory	Test	Total	TW	PR	Gr Total
Nil		MEC	Semester							

Rationale:- Material handling does not add value to a product but it usually adds a significant element of cost. In some industries cost of materials handling is quite significant. In order to cut down on handling cost a systems approach to material handling is a must. This subject is aimed to provide sufficient knowledge to a material-handling technician to study and analyse the material handling problems.

COURSE CONTENT	Hrs	Mks
<b>1. THE FACILITIES DESIGN</b> Definition, Scope, Importance, Facilities design and process, The continuing need for facilities design work, Types of layout problems, A good layout for consideration in facilities, Design procedure.	9	20
<b>2. DESIGNING MATERIAL FLOW</b> Introduction, The overall system flow cycle, Advantages of planned material flow, Need for such flow patterns, Factors for consideration in planning material flow, Flow patterns, Designing the flow patterns.	6	16
<b>3. THE SYSTEM CONCEPT IN MATERIAL HANDLING</b> Meaning of system concept; Basic handling systems; System concept in theory and practice; Ideal system approach; Importance of systems concept in material handling; Steps in systems development, system design and system implementation; The role of computer in the systems concept.	9	20
<b>4. TECHNIQUES FOR ANALYSING MATERIAL FLOW</b> Sources of data required; Flow planning and analysing techniques; Assembly chart; Operation process chart; Multi product process chart; String diagram; Process chart, Flow diagrams; Flow process chart; From to chart; Procedure chart; Critical path method.	6	12
<b>5. DESIGNING THE PROCESS</b> The production design procedure, Factors for consideration in process design, Preliminary production planning, Product analysis, Methods of production, The unit process concept The process design procedure, Computerized process planning.	9	16
<b>6. SPACE DETERMINATION</b> Factors for consideration in space planning. Establishing total space requirements	5	8
<b>7. DESIGNING THE HANDLING SYSTEM</b> Designing the handling system into the layout.	4	8

#### TERM WORK

Term work shall consist of assignment based on above topics which may include the following :

1. Study of flow patterns of at least one organisation.
2. Analysing Material flow at 1. By using various techniques for analysis.
3. Designing the process for a selected product by using a systematic step by step approach
4. Establishing total space requirement for process at 3.

#### TEXTBOOKS AND REFERENCE BOOKS

1. Material handling system design by James M. Apple.
2. Materials Management and Materials Handling by S. C. Sharma.
3. Plant layout and material handling by apple.
4. Material handling handbook.