

5061 – PRINCIPLES OF MATERIAL HANDLING									
Teaching Schedule Per Week			Progressive Assessment		Examination Schedule (Marks)				
Lectures	Practical	Credit			Theory		Practical Ex.	Total	
3	2hrs	5	25	25	100		25	175	
Pre-requisite		Source			Theory	Test	Total	TW	PR
Nil		MEC	Semester		75	25	100	25	50
									Gr Total
									175

RATIONALE: Materials are required in every step of human life materials form the backbone of any industry. Materials are required to be handled in production, packaging, storage, transportation etc. This subject deals with the fundamental knowledge of material handling which a technician is required to acquire for the detailed study of material handling technology in subsequent courses.

COURSE CONTENTS

	Hrs	Mks
1. INTRODUCTION TO MATERIAL HANDLING Definition and scope of material handling, Place of material handling in Industry, Material handling activities and functions, Unproductive nature of material handling, Importance and benefits of material handling, limitations of material handling, Development of material handling, Factors related to material handling, Relationship of material handling to other organisation, activities like purchasing inventory control, production control, industrial engineering etc.	8	16
2. PRINCIPLES OF MATERIAL HANDLING: Listing of all the material handling principles, Using the principles of material handling for some selected Industrial application.	8	16
3. UNIT LOAD CONCEPT: Advantages and disadvantages of unit load, Types of unit loads, basic ways to move a unit load, Planning unit load system, Pallets and containers, Palletless handling & unit load efficiency.	5	12
4. BASIS FOR MATERIAL HANDLING ANALYSIS: Scope of the activity, Material flow cycle, Material handling equation, Factors for consideration in analysing problems – concept to be developed using industrial situations.	6	12
5. PLANT LAYOUT & MATERIAL HANDLING: Definition, types of plant layout, Advantages and disadvantages of plant layout, Influence of material handling on plant layout, building for the plant, Consideration in planning and designing plant building, Single storeyed and multistoreyed building, Advantages of single storeyed and multistoreyed building, Interrelation of plant layout and material handling, Typical plant layouts for selected industrial situation.	8	20
6. MATERIAL HANDLING AT THE WORKPLACE : Definition, Advantages of proper workplace handling, Relationship between material storage and the workplace, principles of workplace layout, implementary workplace handling, Workplace handling equipment, industrial robots.	5	12
7. MATERIAL HANDLING COST CONCEPTS: Reasons for determining accurate material handling cost, Scope of material handling cost, Factors affecting material handling cost, evolution of direct costs and indirect cost, Activity cost determination, Determining total handling cost.	8	12

TERM WORK:

The term work will consist of minimum four out of six assignments, one on each topic, from topic No 2 to 7.

REFERENCE BOOKS:

1. Material handling system design by James M. Apple.
2. Material handling equipment by M.P. Alexandrov.
3. Material handling principles & practices by Theodor H. Allegri.
4. Plant layout and material handling by James M. Apple.
5. Material handling hand book.

