Al-Mustaqbal University
Department: Medical Instrumentation Techniques Engineering
Class: 4th
Subject: Project Management
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2nd term / Lecture: Materials Handling – part 2

Materials Handling

مناولة المواد

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4. Principles of Material Handling:

A good materials handling engineer will generally have several years of experience that can be brought to bear on the solution of materials handling problems or the design of materials handling systems. The following list is considered the principles of material handling:

a. Reducing to a minimum the number of handlings of materials.

b. Eliminating unnecessary mixing and subsequent sorting.

c. Using mechanical aids to eliminate the use of hand labor in movement of materials.

d. Avoiding the unnecessary transfer of materials from floor to workplace or from container to container.

e. Increasing the speed of handling.

f. Utilizing containers and unit loads.

g. Utilizing gravity as a moving force wherever practicable.

h. Introducing automatically into the materials handling plan.

5. General Types of Materials Handling Equipment:

Materials handling equipment can be divided into five classifications.

1. **Conveyors** السيور الناقلة

2. **Monorails, hoists, and cranes** الرافعات

3. **Industrial trucks** العربات الصناعية

4. **Containers and supports** الحاويات والدعامات

5. **Auxiliary and other equipment** المعدات المساعدة

6. Factors Affecting the Selection of Materials Handling Equipment:

العوامل المؤثرة في اختيار معدات مناولة المواد

The selection of materials handling equipment requires the attaining of proper balance between the production problem, the capabilities of the equipment available, and the human element involved. The ultimate aim is to arrive at the lowest cost per unit of material handled. Engineering and economic factors to be taken into consideration may well include the following:

1. **Adaptability : the load carrying and movement characteristics of the equipment should fit the materials handling problem.**

قابلية التكيف

2. **Flexibility: Where possible the equipment should have flexibility to handle more one material, referring either to class or size.**

المرونة

3. **Load capacity:** Equipment selected should have great enough load-carrying characteristics to do the job effectively, yet should not be too large and result in excessive operating costs.
4. **Power:** Enough power should be available to do the job.
5. **Speed:** Rapidity of movement of material, within the limits of the production process or plant safety, should be considered
6. **Space requirements:** The space required to install or operate materials handling equipment is an important factor in its selection.
7. **Supervision required:** As applied to equipment selection, this refers to the degree of automaticity designed into the equipment.
8. **Ease of maintenance:** Equipment selected should be easily maintained at reasonable cost.
9. **Environment:** Equipment selected must conform to any environment regulations.
10. **Cost:** The consideration of the cost of the equipment is an obvious factor in its selection.

3. سعة التحميل 4. القدرة الكافية لأداء المهام 5. السرعة 6. الفضاء اللازم لتنصيب وتشغيل النظام
7. الاشراف المطلوب 8. سهولة الصيانة 9. يتوافق مع البيئة 10. الكلفة