Model No.12

Course Specifications: Design of Materials Handling Equipment

University: Benha University
Faculty: Faculty of Engineering at Shoubra
Department offering the program: Mechanical Engineering Department
Department offering the course: Mechanical Engineering Department

1- Course Data

Course Code: MDP456 **Course Title:** Design of Materials Handling Equipment
Specialization: Mechanical Production Engineering **Course Type:** Elective **Study Year:** Fourth Year
Teaching Hours: Lecture: 3 Tutorial: 2 Practical: 0 Total: 5

2- Course Aim

For students undertaking this course, the aims are to:

1. Recognize the several materials handling equipment.
2. Have the ability to design simple materials handling equipment in several industrial fields such as mining industry and automobile industry …etc.
3. Help students to know the application of robotics in production engineering

3- Intended Learning Outcomes of Course (ILO's)

a. Knowledge and Understanding Skills: On completing this course, students will acquiring and understanding of :

a.1) Characteristics of engineering materials related to Design of material handling equipment (A.3)
a.2) The materials handling equipment such as conveyers, cranes, trucks, and automated vehicles. (A.8)
a-3) Engineering design principles and techniques to design the equipment of materials handling. (A.19)

b. Intellectual Skills: At the end of this course, the students will be able to:

b.1) Assess and evaluate the characteristics and performance of conveyers system and handling robots. (B.5)
b.2) Investigate the failure of conveyers, cranes, and trucks. (B.6)
b.3) Evaluate and appraise designs of equipment , handling processes, and propose improvements (B.15)
b.4) Select appropriate manufacturing method for the conveyers, cranes and trucks considering design requirements. (B.18)

c. Practical and Professional Skills: On completing this course, the students are expected to be able to:

c.1) Professionally merge the engineering knowledge, understanding, and feedback to improve the design of material handling equipment such as conveyers. (C.2)
c.2) Use basic workshop equipment safely (C.15)
c.3) Operate and maintain mechanical equipment such as conveyer, trucks… etc. .(C.18)

d. General and Transferable Skills: At the end of this course, the students will be able to:

d.1) Professionally merge the engineering knowledge, understanding, and feedback to improve design, product and/or services (D.2)

d.2) Use a wide range of analytical tools, techniques, equipment, and software packages pertaining to the discipline and develop required computer programs. (D.6)

d.3) Use basic workshop equipment safely (D.5)

4- Course Contents

Week no.	Topics
1	Introduction to material handling equipment
2	Facility Layout-1
3	Facility Layout-2
4	Detail Design-1
5	Detail Design-2
6	Detail Design-3
7	Conveyor Systems Design
9	Material Handling Systems Design-1
10	Material Handling Systems Design-2
11	Material Handling Systems Design-3
12	Material Handling Systems Design-4
13	Material Handling Equipment Evaluation-1
14	Material Handling Equipment Evaluation-2

5- Teaching and Learning Methods

5.1 Lectures

5.2 Class activity

5.3 Assignments/ Homework

6- Teaching and Learning Methods of Disables

Nothing.

7- Student Assessment

a- Student Assessment Methods

1. Six assignments to assess knowledge and intellectual skills.
2. Two quizzes to assess knowledge, intellectual and professional skills.
3. Midterm exam to assess knowledge, intellectual, professional and general skills.
4. Final exam to assess knowledge, intellectual, professional and general skills.

b- Assessment Schedule

NO.	Assessment	Week
1	Assignments	2, 4, 5, 7, 11, 12
2	Quiz	4 , 10
3	Midterm exam	8
4	Final exam	15

c- Weighting of Assessments

Assessment	Weight (%)
Midterm Examination	20
Final Term Examination	64
Oral Examination	00
Semester Work	16
Other Types of Assessment	00
Total	**100**

8- List of References

a- Course Notes: Course notes prepared by instructor.

b- Recommended Books

- Manufacturing Facilities Design and Material Handlin 4th edition by Matthew P. Stephens, Fred E. Meyers 2005

Course Coordinator: Dr. Mohammed Gamil & Dr. Mahmoud Mansor

Head of Department: Prof. Dr. Osama Ezzat Abdelatif

Model No.11A

Course Specifications: Design of Materials Handling Equipment

University: Benha University
Faculty: Faculty of Engineering at Shoubra
Department offering the program: Mechanical Engineering Department
Department offering the course: Mechanical Engineering Department

Matrix of Knowledge and Skills of the Course

No.	Topics	week	Basic Knowledge	Intellectual Skills	Professional Skills	General Skills
1	Introduction to material handling equipment	1	a.1, a.2	b.1		d.1
2	Facility Layout-1	2	a.1	b.1	c.1	
3	Facility Layout-2	3	a. 2	b.1	c.1	
4	Detail Design-1	4	a.2	b.3		
5	Detail Design-2	5	a.3	b.3		
6	Detail Design-3	6	a.3	b.3	c.2	d.2
7	Conveyor Systems Design	7	a.2 , a.3	b.2		d.2
8	Midterm exam	8	a.2 , a.3	b.3	c.2	
9	Material Handling Systems Design-1	9	a.1	b.2		d.1
10	Material Handling Systems Design-2	10	a. 2	b.4	c.2	
11	Material Handling Systems Design-3	11	a.3	b.1	c.3	d.2
12	Material Handling Systems Design-4	12	a.3	b.1		d.3
13	Material handling equipment evaluation-1	13	a. 2	b.4		d.1
14	Material handling equipment evaluation-2	14	a.1	b.4	c.2	
15	Final exam	15	a.2 , a.3	b.3	c.2	

Course Coordinator: Dr. Mohammed Gamil & Dr. Mahmoud Mansor

Head of Department: Prof. Dr. Osama Ezzat Abdelatif

Matrix of course aims and ILO's

Course Title: Design of Materials Handling Equipment **Code**: MDP456

Lecture: 3 **Tutorial/Practical:** 2 **Total:** 5

Program on which the course is given: B.Sc. Mechanical Production Engineering

Major or minor element of program: Minor.

Department offering the program: Mechanical Engineering Department

Department offering the course: Mechanical Engineering Department

Academic year / level: **Fourth Year / Second semester**

Date of specifications approval: 2014

Course aims	Basic Knowledge	Intellectual Skills	professional Skills	General Skills
1- Recognize the several materials handling equipment.	a1,a2	b1,b2	c1, c2, c3	d1,d.2
2- Have the ability to design simple materials handling equipment in several industrial fields such as mining industry and automobile industry …etc.	a1,a2, a3	b2 b3,b4	c1, c2, c3	d3,d.2
3- Help students to know the application of robotics in production engineering	a2, a3	b3,b4	c1, c2, c3	d1,d.2, d3

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