



BENHA UNIVERSITY



FACULTY OF ENGINEERING AT SHOUBRA

COURSE SPECIFICATIONS (2014-2015)

Model No.12

Course Specifications: Selected topics in Mechanical design

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: MDP 344

Course Title: Selected Topics in Mechanical design

Specialization: Mechanical Production Engineering

Course Type: Elective

Study Year: Third Year

Teaching Hours: Lecture: 4 Tutorial: 2

Practical: 0

Total: 6

2- Course Aim

For students undertaking this course, the aims are to:

1. provide the students with the necessary knowledge, skills and principles for doing different types of machines design.

3- Intended Learning Outcomes of Course (ILOS)

a- Knowledge and Understanding

On completing this course, students will be able to acquire the knowledge and understanding of:

- a-1 Characteristics of engineering materials used in the design of machine elements. (A3)
- a-2 Concepts, principles and theories related to mechanical engineering and manufacture of the selected machines like rolling and drilling machines. (A13)
- a-3 Engineering design principles and techniques which are used in machine elements. (A19)

b- Intellectual Skills

At the end of this course, the students will be able to:

- b-1 Think in a creative and innovative way in designing different types of machines. (B3)
- b-2 Combine, exchange, and assess different ideas, views, and knowledge from a range of sources to provide the best design for the machines with an economical price. (b4)
- b-3 Analyze and interpret data, and design experiments to obtain primary data that can help in the final design of the machines. (B11)
- b-4 Select appropriate manufacturing methods considering design requirements to reach to the required machine dimensions. (B18)



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c- 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 the different machine elements with any size. (C2)
- c-2 Create a design process for a certain machine (rolling machine, drilling machine, screw conveyor, bucket elevator). (C3)
- c-3 Exchange knowledge and skills with engineering community and industry by making visits to different types of factories that include the machines included in the course. (C11)
- c-4 Prepare computer engineering drawings (assembly drawing and part drawing) for the designed machines using solid works or AutoCAD. (C13)

d- General Skills

At the end of this course, the students will be able to:

- d-1 Collaborate effectively within multidisciplinary team in order to provide a suitable machine design. (D1)
- d-2 Search for information (books, internet) about the design of machines and engage in life-long self-learning discipline. (D7)

4- Course Contents

No.	Topics
1	Introduction
2	Materials used in design of machine elements
3	Important basics in design
4	Special design for rotational speed movements
5	Design of conveyor system
6	Design of conveyor system
7	Design of rolling machine
8	Design of bucket elevator
9	Design of drilling machines
10	Design of liquid filling machine
11	Design of liquid filling machine
12	Design of screw conveyor

5- Teaching and Learning Methods

- 5.1 Lectures
- 5.2 Tutorial
- 5.3 Class activity
- 5.4 Case study



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6- Teaching and Learning Methods of Disables

- Nothing.

7- Student Assessment

a- Student Assessment Methods

1. Five 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	3, 5, 7, 10, 11
2	Quiz	4, 9
3	Midterm exam	8
4	Oral exam	-
5	Final exam	15

c- Weighting of Assessments

Assessment	Weight (%)
Midterm Examination	20
Final Term Examination	67
Oral Examination	-
Semester Work (Assignments and quizzes)	13
Total	100

8- List of References

a- Course Notes: Course notes prepared by instructor.

b- Recommended Books

1. P.C. Sharma and D.K. Aggarwal. A text book of Machine Design.
2. R.S. Khurmi and J.K. Gupta, a text book of Machine Design.

Course Coordinator: Dr. Mohammed Gamil

Head of Department: Prof. Dr. Osama Ezzat Abdelatif



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FACULTY OF ENGINEERING AT SHOUBRA

COURSE SPECIFICATIONS (2014-2015)

Model No.11A

Course Specifications: Selected topics in Mechanical design

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	1	a 2			
2	Materials used in design of machine elements	2	a 1			
3	Important basics in design	3	a 2			
4	Special design for rotational speed movements	4	a 3			
5	Design of conveyor system	5		b1, b2	c1, c2	d1, d2
6	Design of conveyor system	6		b3, b4	c3, c4	d1, d2
7	Design of rolling machine	7		b1, b2, b3, b4	c1, c2, c3, c4	d1, d2
8	Design of bucket elevator	9		b3, b4	c1, c2, c3, c4	d1, d2
9	Design of drilling machines	10		b1, b2, b3, b4	c1, c2, c3, c4	d1, d2
10	Design of liquid filling machine	11		b1, b2	c1, c2	d1, d2
11	Design of liquid filling machine	12		b3, b4	c3, c4	d1, d2
12	Design of screw conveyor	13		b1, b2, b3, b4	c1, c2, c3, c4	d1, d2

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Matrix of Course Aims and ILO's

Course Title: Selected topics in Mechanical design

Course Code: MDP344

Teaching Hours: Lecture:4 Tutorial: 2 Total: 6

Major or minor element of program: Major

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

Department offering the program: Mechanical Engineering Department

Department offering the course: Mechanical Engineering Department

Academic year / level: 2014-2015 Third Year / Second semester

Date of specifications approval: 2014

Course aims	Basic Knowledge	Intellectual Skills	Professional Skills	General Skills
1. provide the students with the necessary knowledge, skills and principles for doing design for different types of machines.	a1, a2, a3	b1, b2, b3, b4	c1, c2, c3, c4	d1, d2

Course Coordinator: Dr. Mohammed Gamil

Head of Department: Prof. Dr. Osama Ezzat Abdelatif