Model No.12
Course Specifications (2014-2015)
Design of Machine Elements (2)

University: Benha university

Faculty : Shoubra Faculty of Engineering

Department offering the program: Mechanical Engineering Department.

Department offering the course: Mechanical Engineering Department.

1- Course Data

Course Code: MDP212	**Course Title:** Design of Machine Elements (2)	**Study Year:** Second Year
Specialization:	Mechanical Production Engineering	
Teaching Hours: Lecture: 3	Tutorial/ Practical: 3	

2- Course Aim

For students undertaking this course, the aims are to:

1. Design of more advanced machine elements such as coupling, springs and clutches.
2. Design of welded joints and selection of belts.

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

a- Knowledge and Understanding

On completing this course, students acquire knowledge and understand of:

a.1) The different types of couplings and belts. (A1)

a.2) The steps of mechanical spring design, V-shape belts, flat belts, brakes, and clutches. (A.4)

a.3) The design of wire ropes and welding joints. (A.3)

b- Intellectual Skills

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

b.1) Compare between the rigid and flexible coupling. (B.1)

b.2) Evaluate the performance of the components of handling fluids cylinders, heads, cover plates, Packing and seals. (B.7)

b.3) Assess and evaluate the characteristics of handling fluids, Power transmission systems and friction clutches. (B.3)

c- Professional Skills

On completing this course, the students are expected to be able to:

c.1) Use the property data table of mechanical properties. (C.9)

c.2) Evaluate and analyze the dimensions of the different parts of couplings, mechanical springs, clutches, brakes and belts. (C.2)

d- General Skills

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

d.1) Search for information and communicate effectively. (D.1)

4- Course Contents

No.	Topics
1	Design of Couplings : Rigid coupling and Flexible coupling
2	Design of mechanical springs
3	Design of mechanical springs
4	Details for handling fluids : Cylinders , heads & cover plates and Packing and seals
5	Details for handling fluids : Cylinders , heads & cover plates and Packing and seals
6	Details for handling fluids : Cylinders , heads & cover plates and Packing and seals
7	Power transmission systems : Belting
8	flat belts
9	V-Shape belts
10	Friction clutches
11	brakes
12	Chains and Wire ropes.
13	Design of welded joints

5- Teaching and Learning Methods

5.1- Lectures
5.2- class activity
5.3- case study
5.4- 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, professional and general skills
3	Mid-term 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, 9, 11
2	Quizzes	5, 10
3	Mid-term exam	8
4	Final exam	15

c- Weighting of Assessments

Assessment	Weight
Mid Term Examination	20 %
Final Term Examination	60 %
Oral Examination	0 %
Practical Examination	0 %
Semester work	20 %
Other types of assessment	0 %
Total	100 %

8- List of References

a- Course Notes

1- Prepared by instructor.

b- Recommended Books

1- Joseph Edward Shigley, Mechanical Engineering Design, McGraw-Hill; 8th, in SI units edition, 2006.
2- Black and Adams, Machine Design, McGraw-Hill, 1968.
3- GalalShawki, Design Data Tables.

Course Coordinator: Prof. Dr. Fareda Sayed Ahmed & Dr. Samah Samir

Head of Department: Prof. Dr. Osama Ezzat Abdelatif

Model No.11A
Course Specifications: Design of Machine Elements (2)

University : Benha university
Faculty : Shoubra Faculty of Engineering
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	Design of Couplings: Rigid coupling and Flexible coupling	1	a1	b1	c1,c2	d1
2	Design of mechanical springs	2	a2	b1	c1,c2	
3	Design of mechanical springs	3		b2	c1	d1
4	Details for handling fluids : Cylinders , heads & cover plates and Packing and seals	4		b2	c1,c2	d1
5	Details for handling fluids : Cylinders , heads & cover plates and Packing and seals	5	a3	b1,b3	c1,c2	d1
6	Details for handling fluids : Cylinders , heads & cover plates and Packing and seals	6	a3	b3	c1,c2	d1
7	Power transmission systems : Belting	7	a1,a2	b3	c1	d1
8	flat belts	8	a1	b3	c2	
9	V-Shape belts	9	a1	b3	c2	
10	Friction clutches	10	a3	b3	c1,c2	d1
11	brakes	11		b3	c1	d1
12	Chains and Wire ropes.	12	a3		c1	d1
13	Design of welded joints	13	a3		c1	

Course Coordinator: Prof. Dr. Fareda Sayed Ahmed & Dr. Samah Samir

Head of Department: Prof. Dr. Osama Ezzat Abdelatif

Matrix of course aims and ILO's

Course Title: Design of Machine Elements (2)

Code: MDP212 Lecture: 3 Tutorial/ Practical: 3 Total: 6

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

Major or minor element of program: Major

Department offering the program: Mechanical Engineering Department

Department offering the course: Mechanical Engineering Department

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

Date of specifications approval: 2014

Course aims	a	b	c	d
1. Design of more advanced machine elements such as coupling, springs and clutches.	a1	b2 b3	c1 c2	d1
2. Design of welded joints and selection of belts.	a2 a3	b1	c1 c2	d1

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