



BENHA UNIVERSITY



FACULTY OF ENGINEERING AT SHOUBRA

COURSE SPECIFICATIONS (2014-2015)

Model No.12

Course Specifications: Product Design Using Computer

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: MDP422

Course Title: Product Design Using Computer

Specialization: Mechanical Production Engineering

Course Type: Compulsory

Study Year: Fourth Year

Teaching Hours: Lecture: 2 Tutorial: 3

Practical: 0

Total: 5

2- Course Aim

For students undertaking this course, the aims are to:

- 1- Use modern computer package to design products.

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) Principles of product design for operation, manufacture, maintenance and assembly needs. (A.4)
- a.2) Business and management principles related to product design. (A.7)
- a.3) Product design specification using the recent engineering technologies. (A.8)

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 design or redesign a product. (B.3)
- b.2) Assess different ideas for the required design for assembly, maintenance, and manufacturing. (B.4)
- b.3) Analyze and interpret data to obtain primary data for product design. (B.14)

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

- c.1) Merge the engineering knowledge, understanding, and feedback to improve product design. (C.2)
- c.2) Use computational facilities and techniques measuring instruments workshops and laboratories equipment to design experiments collect analyze and interpret results. (C.5)

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

- d- 1 -Collaborate effectively within multidisciplinary team. (D.1)
- d- 2 - Lead and motivate individuals. (D.5)



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4- Course Contents

Week no.	Topics
1	Introduction
2	Production management
3	Design management
4	State product design specification
5	Select material for design
6	Design for operation needs
7	Design for manufacture needs
9	Design for maintenance needs
10	Design for dependent needs
11	Design for assembly needs
12	Design complete product
13	Design examples
14	Design evaluation

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 and professional skills.
3. Midterm exam to assess knowledge, intellectual, professional and general skills.
4. Oral exam to assess knowledge, intellectual, professional and general skills.
5. 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	oral exam	15
5	Final exam	2, 4, 5, 7, 11, 12

c- Weighting of Assessments

Assessment	Weight (%)
Midterm Examination	10
Final Term Examination	60
Oral Examination	20
Semester Work	10
Other Types of Assessment	00
Total	100



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8- List of References

a- Course Notes: Course notes prepared by instructor.

b- Recommended Books

- Kuang-Hua Chang, "Product Design Modeling using CAD/CAE", Elsevier Academic Press, 2014.
- George E. Dieter, Linda C. Schmidt, "Engineering Design", 5th Edition, 2013, McGraw-Hill Publishing Company.

Course Coordinator: Dr Hossam Zakaria & Dr. Elawady Attia

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: Product Design Using Computer

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.1			
2	Production management	2	a.1			
3	Design management	3	a.2	b.1		
4	State product design specification	4			c.2	
5	Select material for design	5				d.1
6	Design for operation needs	6	a.1	b.2		
7	Design for manufacture needs	7	a.1		c.1	
8	Mid-term	8				
8	Design for maintenance needs	9	a.1	b.3		
9	Design for dependent needs	10	a.3			
10	Design for assembly needs	11	a.1	b.2	c.2	
11	Design complete product	11	a.2			
12	Design examples	12		b.1		
13	Design evaluation	13				d.2
14	Oral exam	14				

Course Coordinator: Dr Hossam Zakaria & Dr. Elawady Attia

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COURSE SPECIFICATIONS (2014-2015)

Matrix of course aims and ILO's

Course Title: Product Design Using Computer **Code:** MDP422

Lecture: 2 **Tutorial/Practical:** 3 **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
Use modern computer package to design a product.	a1, a2, a3	b1,b2,b3	c1, c2	d1,d.2

Course Coordinator: Dr Hossam Zakaria & Dr. Elawady Attia

Head of Department: Prof. Dr. Osama Ezzat Abdelatif