

University/Academy:

Faculty/Institute: Alexandria Higher Institute of Engineering & Technology (AIET)

Program: Industrial Engineering

**Form no. (12)
Course Specification**

1- Course Data

Course Code: ME142	Course Title: Design of Machine Elements	Academic Year/Level: First / 1 st
Specialization: Mechatronic	No. of Instructional Units: Lecture 2 Practical 4	

2- Course Aim	By the end of the course the students will be able to: <ul style="list-style-type: none"> • Deal with Machine Design Concepts and Equations. • Draw Machine assembly with full details and read the drawn ones.
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3- Intended Learning Outcome

a- Knowledge and Understanding	a1. Define Machine Design and stresses. a2. Identify types of stresses. a3. Identify Design of Rivets. a4. Identify Welding, Welded joints and symbols. a5. Identify Belt Drive. a6. Describe Screw and Locking devices. a7. Describe Keys and Pins. a8. Describe Helical spring and Bearing. a9. Describe Gears.
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b- Intellectual Skills	b1. Interpret Machine Design and stresses. b2. Distinguish types of stresses. b3. Solve Design of Rivets problems. b4. Solve Welding problems. b5. Solve Belt Drive problems. b6. Compare Screw and Locking devices types. b7. Compare Keys and Pins types. b8. Compare Welded joints types. b9. Compare Helical spring types b10. Compare Bearing types. b11. Compare Gears types.
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c- Professional Skills		c1. Design of Machine parts. c2. Design of Rivets joints. c3. Design of Welding joints. c4. Design of Belt Drive.																		
d- General Skills		d1- Improve search skills. d2- Improve analysis of results skills. d3- Appreciate Machine Design applications in life.																		
4- Course Content																				
weeks	Content	Lecture																		
1, 2	Introduction & Screw	4																		
3, 4	Simple Stresses & Locking devices	4																		
5, 6	Compound Stresses	4																		
7	Revision	2																		
9, 10	Design of Rivets & Keys and Pins	4																		
11, 12	Welding & Welded joints and symbols	4																		
13, 14	Belt Drive & Helical spring and Bearing	4																		
15	Revision & Gears	2																		
5- Teaching and Learning Methods		1- Lectures 2- Tutorial - problems 3- Laboratory work																		
6- Teaching and Learning Methods for Students with Special Needs		Not Applicable																		
7- Student Assessment:																				
a- Procedures used:		1- Reports 2- Final laboratory exam 3- Written Exams																		
b- Schedule:		1- Quizzes weeks 4, 6, 10, 12 2- Mid-term exam week 8 3-Final written exam week 16																		
c- Weighing of Assessment:		1- Quizzes & Reports 20% 2- Mid-term exam 20% 3-Final written exam 60%																		
Total		100%																		
8- List of References:																				
a- Course Notes		<table border="1"> <thead> <tr> <th>Week</th> <th>Title</th> </tr> </thead> <tbody> <tr> <td>1, 2</td> <td>Introduction & Screw</td> </tr> <tr> <td>3, 4</td> <td>Simple Stresses & Locking devices</td> </tr> <tr> <td>5, 6</td> <td>Compound Stresses</td> </tr> <tr> <td>7</td> <td>Revision</td> </tr> <tr> <td>9, 10</td> <td>Design of Rivets & Keys and Pins</td> </tr> <tr> <td>11, 12</td> <td>Welding & Welded joints and symbols</td> </tr> <tr> <td>13, 14</td> <td>Belt Drive & Helical spring and Bearing</td> </tr> <tr> <td>15</td> <td>Revision & Gears</td> </tr> </tbody> </table>	Week	Title	1, 2	Introduction & Screw	3, 4	Simple Stresses & Locking devices	5, 6	Compound Stresses	7	Revision	9, 10	Design of Rivets & Keys and Pins	11, 12	Welding & Welded joints and symbols	13, 14	Belt Drive & Helical spring and Bearing	15	Revision & Gears
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b- Required Books (Textbooks)	- R.S. Khurmi, J.K. Gupta, (2005), "A Textbook of Machine Design", Eurasia Publishing House, First Multicolor Edition.
c- Recommended Books	
d- Periodicals, Web Sites, ..., etc.	http://www.mit.edu/

Course Instructor:

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Head of Department:

Prof. Mahmoud Mostafa

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Prof. Mahmoud Mostafa