

Course Specifications (2011 - 2012)

A. Basic Information

Course Title	Mechanics			Course Code:	EMP 012		
Lecture:	2	Tutorial:	2	Practical	0	Total	4
Programme (s) on which this course is given:	All Programs						
Major or minor element of program:	Major						
Department offering the program:	Engineering Mathematics Physics						
Department offering the course:	Engineering Mathematics Physics						
Academic Year of program:	Preparatory		Level of program:	First Semester			
Date of specifications approval:	Saturday, October 01, 2011						

B. Professional Information

1. Overall aims of course

By the end of the course the students will be able to:

- Deal with vectors, find moments of forces about a point and a line
- Replace a system of forces by (Force and moment), (Single forces) and a (wrench)
- Study the equilibrium of a particle and statically determinate rigid body in 2D and 3D.
- Find the center of gravity of different geometries in 2D and 3D.
- Study the equilibrium statically determinates trusses in 2D.
- Study the equilibrium of 2D rigid bodies including Friction (friction with rough surfaces-belt friction-rolling friction and axel friction).

2. Intended Learning outcomes of Course (ILOs)

a. Knowledge and Understanding:

- a.1) Recognize concepts and theories of mathematics and sciences, appropriate to the discipline.
- a.5) Recognize methodologies of solving engineering problems, data collection interpretation.
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b. Intellectual Skills

b.1) Select appropriate mathematical and computer-based methods for modeling and analyzing problems.
b.2) Select appropriate solutions for engineering problems based on analytical thinking.
b.7) Solve engineering problems, often on the basis of limited and possibly contradicting information.

c. Professional and Practical Skills

c.1) Apply knowledge of mathematics, science, information technology, design, business context and engineering practice to

d. General and Transferable Skills

d.1) Collaborate effectively within multidisciplinary team.

3. Contents

Week #	Topics	No. of Hours	ILOS	Teaching / learning methods and	Assessment method
1	Vector algebra and some of its applications in statics	2	a1	Lectures	
			b1	Class activity	
			d1		
2	Vector algebra and some of its applications in statics	2	a1	Lectures	
			b1	Class activity	
			d1		
3	Equilibrium of a particle	2	a1,a5	Lectures	
			b1,b2,b7	Class activity	
			d1		
4	Couple, Movement of forces	2	a1,a5	Lectures	
			b1,b2,b7	Class activity	
			d1		
5	Movement of forces	2	a1,a5	Lectures	
			b1,b2,b7	Class activity	
			d1		
6	Equilibrium of a rigid body	2	a1,a5	Lectures	
			b1,b2,b7	Class activity	
			c1		
			d1		
7	Equilibrium of a rigid body	2	a1,a5	Lectures	Assignments
			b1,b2,b7	Class activity	
			c1		
			d1		
8	Midterm Exam	1	a1,a5		
			b1,b2,b7		

8	Midterm Exam	1			
9	First moments and Centroid	2	a1,a5	Lectures	
			b1,b2	Class activity	
			c1		
			d1		
10	First moments and Centroid	2	a1,a5	Lectures	
			b1,b2	Class activity	
			c1		
			d1		
11	Trusses and Cables	2	a1,a5	Lectures	
			b1,b2	Class activity	
			c1		
			d5		
12	Trusses and Cables	2	a1,a5	Lectures	
			b1,b2	Class activity	
			c1		
			d1		
13	Friction	2	a1,a5	Lectures	
			b1,b2	Class activity	
			c1		
			d1		
14	Friction	2	a1	Lectures	
			b1,b2	Class activity	
			c1		
			d1		
15					
Total		27			

4- Teaching and Learning Methods:

Check using the symbol √

√	Lectures
	Practical training / laboratory
	Seminar / workshop
√	Class activity
	Case study
	Project work
	Tutorial
	Computer based work
	Other :

5- Student Assessment Methods:

Check using the symbol √

√	Assignments	to assess
	Quiz	to assess
√	Mid-term exam	to assess
	Oral exam	to assess
	Final exam	to assess
	Design Project	to assess
	Report	to assess
	Experimental write up	to assess
	Informally assessment	to assess
	Other	to assess

a1,a5	b1,b2,b7	c1,c7	d1,d5
a1,a5	b1,b2,b7		

6. Assessment schedule

- Assessment 1 Assignments on weeks
- Assessment 2 Quizzes on weeks
- Assessment 3 Mid-term exam on week
- Assessment 4 Oral Exam on week
- Assessment 5 Final exam on week
- Assessment 6 Design Project on weeks
- Assessment 7 Report on weeks
- Assessment 8 Experimental write up on weeks
- Assessment 9 Informally assessment

All
8

7. Weighting of Assessments

Assignments	10%
Quiz	
Mid-term exam	10%
Oral exam	
Final exam	
Design Project	
Report	
Experimental write up	
Informally assessment	
Other	
Total	20%

8. List of References

8.1 Course Notes

- Lecture notes and handouts

8.2 Essential Books (Text Books)

8.3 Recommended Books

8.4 Periodicals Web sites, etc

9. Facilities Required for Teaching and learning

• White board, prepared notes, Sheets and solving problems. and chemistry

Course Coordinator:

Prof. AbdulRahman Ali Saad

Dr. Mohamed Yehia Akl Afifi

Course instructor:

Prof. AbdulRahman Ali Saad

Head of department:

Associate Prof. Ahmed Mohamed Abdullah Hayawa

Signature:

Date:

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2011