

All Programs

Course Description and Outline – MP 103

Course Title : *Engineering Mechanics (1) : Statics* Course code : MP 103
Academic Year : 2008 - 2009
Course Instructor : Prof Dr. Farouk Elbarki.
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Course Description : *General principles. Force vector. Equilibrium of a particle. Force system resultants. Equilibrium of a rigid body . Structural Analysis (Trusses & Frames). Friction*

Purpose of the course : *To provide the students with the important rules which must be known to analyze a general force system, to transform a complicated practical structure or a machine element to an equivalent simple mathematical model and to apply the conditions of equilibrium of rigid bodies on some ideal ,as well as, actual structures such as trusses and frames .*

Course Textbook : Engineering Mechanics - Statics & Dynamics – Fifth Edition
Bedford / Fowler

Electronic teaching resources : The Electronic teaching resources are available at the following web site: <http://www.alexeng.edu.eg/eng/dept/electrom/wiki/resource>. and then Special Programs and then in the Left Menu: Teaching Resources.

Material which will be covered from the book is illustrated in the following table .

Week	Topic
1.	Introduction & Definitions
	<i>Revision Problems for Trigonometry - Coplanar forces - Parallelogram Law</i>
2.	The Resultant of a Group of Concurrent Coplanar Forces
	<i>Examples : 2-4 , 2-5 – Additional examples. Problems:2-42,2-43,44,46,49,52,54,56.</i>
3.	Equilibrium of a Particle
	<i>Examples : 3-2 , 4, Additional examples . Problems : 3-4,3-7,8,9,22,27,29,30,33,34.</i> <u>Quiz I : 4 - MARKS</u>
4.	Moment of a Force – Moment of a Couple - The resultant of a system of coplanar forces & couples – Lec.1
	<i>Examples : 4-1 , 2 , 3,10. Problems : 4-6,4-16,17,20,22,28,40,117,118.</i>
5.	<i>Moment of a Force – Moment of a Couple - The resultant of a system of coplanar forces & couples – Lec.2 <u>Quiz II : 4 - MARKS</u></i>
	<i>Examples : 4-13 , Additional examples . Problems : 4-140,141,142 , Review Problems. :</i>
6.	<i>Equilibrium of a Rigid Body – The free body diagram .</i>
	<i>Examples : 5-1 .</i> <u>Midterm I : (12 MARKS)</u>
7.	<i>Equilibrium of a Rigid Body – Equations of Equilibrium .</i>
	<i>Examples : 5-2 , 3 , Additional Examples . Problems:5-4,5-6,8,10,12,13,14,19,33,43,52,56,126,128.</i>

<p>8.</p>	<p><i>Equilibrium of a system of particles – Trusses : the method of joints</i></p> <hr/> <p><i>Examples : 6-1 , Additional examples .</i> <u>Quiz III : 4 - MARKS</u> <i>Problems: 6-4,6,11,14,Additional Problems.</i></p>
<p>9.</p>	<p><i>Trusses (continued) -The method of sections.</i></p> <hr/> <p><i>Examples :6-3,6-4,Additional Examples.</i> <i>Problems : 6-35,36,37,44,48, Additional Problems.</i> <u>Quiz IV: 4-MARKS</u></p>
<p>10.</p>	<p><i>Review Problems</i></p> <hr/> <p style="text-align: center;"><u>Midterm II : (12 marks) - At the Tutorial time</u></p>
<p>11.</p>	<p><i>Equilibrium of a system of rigid bodies – Frames .</i></p> <hr/> <p><i>Examples : 6-6 , 6-7,Additional Examples.</i> <i>Problems : 6-71,72,73,75.</i></p>
<p>12.</p>	<p><i>Equilibrium of a system of rigid bodies(continued).</i></p> <hr/> <p><i>Examples : Additional examples .</i> <i>Problems : 6-76,80,81,83,94.</i> <u>QUIZ V- 5 MARK</u></p>
<p>13.</p>	<p><i>Friction</i></p> <hr/> <p><i>Examples : 9-1 , Additional Examples.</i> <i>Problems : 9-7,8,9,12.</i></p>
<p>14.</p>	<p><i>Friction (continued)</i></p> <hr/> <p><i>Examples : 9-2,9-3 , Additional Examples.</i> <i>Problems: 9-25,26,27,28,45,50,51.</i></p>
<p>15.</p>	<p style="text-align: center;"><i>Revision</i></p>
<p>16.</p>	<p style="text-align: center;"><i>Final Examination</i></p>

Exams :

There will be two midterm exams and one final exam . The dates of the midterm exams are implicitly determined as shown in the table . The exams will be conducted during regular class times . Each midterm exam will cover some topics , while the final exam will cover all the topics .

Course Grading : *Your grade is based on your performance and is split as follows :*

<i>Quizes</i>	<i>21 Marks</i>
<i>Midterm I</i>	<i>12 Marks</i>
<i>Midterm II</i>	<i>12 Marks</i>
<i>Attendance</i>	<i>5 Marks</i>
<i>Final Exam .</i>	<i>50 Marks</i>
TOTAL	100 Marks

1st. week – 6th.week	20 MARKS
7th. week – 10th.week	20 MARKS
11th.week – 15th.week	10 MARKS
FINAL EXAM	50 MARKS
TOTAL	100 MARKS

Remarks :

- 1. Students must attend all exams at the assigned time and place.*
- 2. The final exam will cover all the material covered during the whole semester.*
- 3. Class Participation is required and encouraged . Feel free to ask any questions during the lecture or the tutorial.*

BEST WISHES

DR. Farouk Elbarki , Dr. Saad Elsafy ,Dr. Hanaa Elabasy.