



**Philadelphia University**  
**Faculty of Engineering**  
**Department of Mechanical Engineering**  
**Second semester, 2008/2009**

**Course Syllabus**

<b>Course Title:</b> Engineering Mechanics :Statics	<b>Course code:</b> 640231+620211
<b>Course Level:</b> 2th year	<b>Course prerequisite (s) and/or co requisite (s):</b> Mathematics
<b>Lecture Time:</b> 12-13:10 Sun/Tues/Thurs	<b>Credit hours:</b> 3

**Academic Staff Specifics**

<b>Name</b>	<b>Rank</b>	<b>Office Number and Location</b>	<b>Office Hours</b>	<b>E-mail Address</b>
<b>Dr. A. Qandil</b>	<b>Assis. Prof</b>	<b>E Department of Mechatronics</b>	<b>13:30-15:00</b>	<b>Qand4@Hotmail.it</b>

**Course module description:**

This course provides the material needed for the basic understanding of the theory and applications of rigid body statics. This course is standard requirement in any engineering as well as in most engineering technology disciplines.

**Course module objectives:**

- Understand Statics Fundamentals
- Analyze Forces and Calculate Equilibriums for rigid bodies
- Develop Free Body Diagrams
- Calculate centers, moments of inertia, and work
- Gain a working insight into the design and analysis of practical static structures.

**Method of instruction:**

Lectures, class demonstrations, chalkboard, digital and digitized media, presentation, discussions, in class problem solving, computer simulation, homework assignment of problem.

### Course/ module components

- **Books**  
**Title: Engineering Mechanics: Statics**  
**Author: R.CHibbeler**  
**Publisher: Prentice Hall**  
**Edition : Tenth edition, 2004**
- **Support material (s)** Lecture notes soft copy (vcs, acs, etc).
- **Study guide (s)**
- **Homework and laboratory guide (s) .**

### Teaching methods:

- 3 Lectures a week
- 1-2 Appointments for tutorials and problem solving after each chapter

### Assessment instruments

- Short reports and/ or presentations, and/ or Short research projects
- Quizzes.
- Home works
- Final examination: 50 marks

<u>Allocation of Marks</u>	
<b>Assessment Instruments</b>	<b>Mark</b>
First examination	<b>20</b>
Second examination	<b>20</b>
Final examination: 50 marks	<b>50</b>
Reports, research projects, Quizzes, Home works, Projects	<b>10</b>
Total	<b>100</b>

### Learning outcomes:

1. Provide the best learning environment and concepts and technical education needed to achieve the above indicated student objectives and for a career in Engineering Technology.
2. Demonstrate the knowledge and dexterity to perform effectively in the workplace with the communication skills needed to deal with fellow workers, clients and public.
3. Emphasize the understanding of societal implications of engineering decisions and design in both a local and global context and the ethical training to evaluate those implications.
4. Encourage class participation, questions and class related discussions.
5. Incite critical analysis in the solution of problem and application of innovation in technology.
6. Stimulate team work inside and outside the classroom.
7. Keep students informed of their progress during the semester.
8. Provide support inside and outside the classroom.

## Documentation and academic honesty

- Documentation style (with illustrative examples)
- Protection by copyright
- Avoiding plagiarism.

## Course/module academic calendar

<b>week</b>	<b>Basic and support material to be covered</b>	<b>Homework/reports and their due dates</b>
(1)	General Principles Tutorial and problem solving	Selected typical Problems
(2)	Force Vectors Tutorial and problem solving	Selected typical Problems
(3)	Equilibrium of a Particle Tutorial and problem solving	Selected typical Problems
(4)	Force System Resultants Tutorial and problem solving	Selected typical Problems
(5)	Force System Resultants Tutorial and problem solving	Selected typical Problems
(6)	Equilibrium of a Rigid Body Tutorial and problem solving	Selected typical Problems
(7) <b>Mid Examination</b>	Equilibrium of a Rigid Body Tutorial and problem solving	Selected typical Problems
(8)	Structural Analysis Tutorial and problem solving	Selected typical Problems
(9)	Structural Analysis Tutorial and problem solving	Selected typical Problems
(10)	Internal Forces Tutorial and problem solving	Selected typical Problems
(11) <b>Mid Examination</b>	Friction Tutorial and problem solving	Selected typical Problems
(12)	Center of Gravity and Centroid Tutorial and problem solving	Selected typical Problems
(13)	Center of Gravity and Centroid Tutorial and problem solving	Selected typical Problems
(14)	Moments of Inertia Tutorial and problem solving	Selected typical Problems
(15)	Moments of Inertia Tutorial and problem solving	Selected typical Problems
(16)	Virtual Work Tutorial and problem solving	Selected typical Problems
<b>Final Examination</b>	Tutorial and problem solving	Selected typical Problems

**Expected workload:**

**On average students need to spend 2 hours of study and preparation for each 50-minute lecture/tutorial.**

**Attendance policy:**

**Absence from lectures and/or tutorials shall not exceed 15%. Students who exceed the 15% limit without a medical or emergency excuse acceptable to and approved by the Dean of the relevant college/faculty shall not be allowed to take the final examination and shall receive a mark of zero for the course. If the excuse is approved by the Dean, the student shall be considered to have withdrawn from the course.**

**Module references**

**Books**

- **Das, Kassimali, Sami , “Engineering Mechanics Statics”, IRWIN., 1994.**
- **James R.Ogden Mechanics: Statics - Dynamics (Rea's Problem Solvers) Powells Books**
- **F.P.Beer, E.R.Johnston.Jr..and E.R.Eisenberg.Vector Mechanics for Engineers- Statics,8 edition,WCB McGraw-Hill,2007**

**Websites**

**<http://www.yourotherteacher.com>**

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Engineering Mechanics Statics and Dynamics. Irving H. Shames Professor Dept. of Civil, Mechanical and Environmental Engineering  
The George Washington University. Prentice Hall, Upper Saddle River, New Jersey 07458. Engineering Mechanics: Statics, 14th  
Edition Engineering Mechanics: Statics, 14th Edition. 14th Edition | ISBN: 9780133918922 / 0133918920. 1,500. Now is the time to  
redefine your true self using Slader's Engineering Mechanics: Statics answers. Shed the societal and cultural narratives holding you  
back and let step-by-step Engineering Mechanics: Statics textbook solutions reorient your old paradigms. NOW is the time to make  
today the first day of the rest of your life. Abstract and Figures. Lectures on Engineering Mechanics: Statics and Dynamics is suitable for  
Bachelor's level education at schools of engineering with an academic profile. It gives a concise and formal account of the theoretical  
framework of elementary Engineering Mechanics. A distinguishing feature of this textbook is that its content is consistently structured  
into postulates, definitions and theorems, with rigorous derivations.

Engineering Mechanics is divided into these two parts, Vol. 1 Statics and Vol. 2 Dynamics. 1/2 Basic Concepts The following concepts and definitions are basic to the study of mechanics, and they should be understood at the outset. Space is the geometric region occupied by bodies whose positions are described by linear and angular measurements relative to a coordinate system. Statics deals primarily with the calculation of external forces which act on rigid bodies in equilibrium. Engineering Mechanics: Statics, 8th Edition. 2014 • 32.51 MB • 20,004 Downloads • New! Engineering Mechanics Dynamics RC Hibbeler 6th edition Solution manual. 137 Pages • 2017 • 16.11 MB • 24,373 Downloads. Engineering Mechanics. Dynamics. R.C. Hibbeler. Engineering Mechanics: Statics excels in providing a clear and thorough presentation of the theory and application of engineering mechanics. Engineering Mechanics empowers students to succeed by drawing upon Prof. Hibbeler's everyday classroom experience and his knowledge of how students learn. This text is shaped by the comments and suggestions of hundreds of reviewers in the teaching profession, as well as many of the author's students. Statics is typically the first engineering mechanics course taught in university-level engineering programs. It is the study of objects that are either at rest, or moving with a constant velocity. Statics is important in the development of problem solving skills. It teaches you to think about how forces and bodies act and react to one another. You learn how to analyze word problems, pull out the important information and then solve. One of the most important aspects of this course is the use of free body diagrams. Abstract and Figures. Lectures on Engineering Mechanics: Statics and Dynamics is suitable for Bachelor's level education at schools of engineering with an academic profile. It gives a concise and formal account of the theoretical framework of elementary Engineering Mechanics. A distinguishing feature of this textbook is that its content is consistently structured into postulates, definitions and theorems, with rigorous derivations.