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With a clear  
writing style,  
comprehensive  
coverage and a  
variety of  
solved

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problems,

Engineering

Mechanics is a complete guide to students of engineering mechanics. The book uses both the scalar and vector

approaches in explaining core concepts, which

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are preceded by a practical example. A large number of worked-out examples as well as numerous review questions and practice problems at the end of every chapter aid in

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the  
understanding  
and retention.

This is a full  
version; do not  
confuse with 2  
vol. set  
version

(Statistics  
9780072828658  
and Dynamics  
9780072828719)  
which LC will

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not retain.

Plesha, Gray,  
and Costanzo's  
Engineering  
Mechanics:  
Statics &  
Dynamics  
presents the  
fundamental  
concepts,  
clearly, in a  
modern context  
using

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applications and pedagogical devices that connect with today's students. The text features a five-part problem-solving methodology that is consistently used throughout

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all example problems. This methodology helps students lay out the steps necessary to correct problem-formulation and explains the steps needed to arrive at correct and

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realistic solutions. Once students have fully mastered the basic concepts, they are taught appropriate use of modern computational tools where applicable. Further



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reinforcing the text's modern emphasis, the authors have brought engineering design considerations into selected problems where appropriate. This sensitizes students to the

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fact that engineering problems do not have a single answer and many different routes lead to a correct solution. The first new mainstream text in engineering mechanics in

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nearly twenty  
years, Plesha,  
Gray, and  
Costanzo's  
Engineering  
Mechanics:  
Statics and  
Dynamics will  
help your  
students learn  
this important  
material  
efficiently and

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effectively.

Principles of

Engineering

Mechanics

STATICS AND

DYNAMICS

Engineering

Mechanics, 1st

Edition

Engineering

Mechanics 1

Jong and Rogers

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have written an in depth text covering various topics of the first courses in statics and dynamics offered in the sophomore and junior year of engineering colleges. Students are assumed to have a background in algebra, geometry,

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trigonometry, and  
basic differential and  
integral calculus.

Students with prior  
knowledge of college  
physics will have an  
added advantage for  
learning statics and  
dynamics.

Mechanics has long  
been recognized as a  
deductive science.

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However, the learning process is largely inductive. In the text, simple topics and problems precede those that are more complex and advanced. The text is written to provide a clear and up-to-date presentation of the

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theory and  
application of  
engineering  
mechanics; It is  
aimed at helping  
engineering students  
develop an ability to  
apply well-  
established  
principles to analyze  
and solve problems  
in a logical



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and ineffective manner.

This book is tailor-made as per the syllabus of Engineering Mechanics offered in the first year of undergraduate students of Engineering. The book covers both Statics and

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Dynamics, and provides the students with a clear and thorough presentation of the theory as well as the applications. The diagrams and problems in the book familiarize students with actual situations encountered in

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engineering.  
Papers.

Separation of the elements of classical mechanics into kinematics and dynamics is an uncommon tutorial approach, but the author uses it to advantage in this two-volume set. Students gain a mastery of

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kinematics first – a solid foundation for the later study of the free-body formulation of the dynamics problem. A key objective of these volumes, which present a vector treatment of the principles of mechanics, is to help

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the student gain confidence in transforming problems into appropriate mathematical language that may be manipulated to give useful physical conclusions or specific numerical results. In the first

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volume, the elements  
of vector calculus  
and the matrix  
algebra are reviewed  
in appendices.

Unusual  
mathematical topics,  
such as singularity  
functions and some  
elements of tensor  
analysis, are  
introduced within the

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text. A logical and systematic building of well-known kinematic concepts, theorems, and formulas, illustrated by examples and problems, is presented offering insights into both fundamentals and applications.

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Problems amplify the material and pave the way for advanced study of topics in mechanical design analysis, advanced kinematics of mechanisms and analytical dynamics, mechanical vibrations and controls, and



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continuum  
Papers.

mechanics of solids  
and fluids. Volume I  
of Principles of  
Engineering  
Mechanics provides  
the basis for a  
stimulating and  
rewarding one-term  
course for advanced  
undergraduate and  
first-year graduate

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students specializing  
in mechanics,  
engineering science,  
engineering physics,  
applied mathematics,  
materials science,  
and mechanical,  
aerospace, and civil  
engineering.

Professionals  
working in related  
fields of applied

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mathematics will  
find it a practical  
review and a quick  
reference for  
questions involving  
basic kinematics.

Statics

Loose Leaf Version  
for Engineering  
Mechanics: Statics  
Electrical, Civil,  
Mechanical, and

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Mining Engineering  
Elements of Civil  
Engineering and  
Engineering  
Mechanics

*Engineering  
mechanics is one  
of the  
fundamental  
branches of  
science that is  
important in the  
education of*

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*professional  
engineers of any  
major. Most of  
the basic  
engineering  
courses, such as  
mechanics of  
materials, fluid  
and gas  
mechanics,  
machine design,  
mechatronics,  
acoustics,  
vibrations, etc.*

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are based on engineering mechanics courses. In order to absorb the materials of engineering mechanics, it is not enough to consume just theoretical laws and theorems--a student also must develop an

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*ability to solve  
practical  
problems.*

*Therefore, it is  
necessary to  
solve many  
problems  
independently.*

*This book is a  
part of a four-  
book series  
designed to  
supplement the  
engineering*

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*mechanics*  
*courses. This*  
*series instructs*  
*and applies the*  
*principles*  
*required to*  
*solve practical*  
*engineering*  
*problems in the*  
*following*  
*branches of*  
*mechanics:*  
*statics,*  
*kinematics,*



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*dynamics, and  
advanced  
kinetics. Each  
book contains  
between 6 and 8  
topics on its  
specific branch  
and each topic  
features 30  
problems to be  
assigned as  
homework, tests,  
and/or  
midterm/final*

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*exams with the consent of the instructor. A solution of one similar sample problem from each topic is provided. This first book contains seven topics of statics, the branch of mechanics*

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*concerned with the analysis of forces acting on construction systems without an acceleration (a state of the static equilibrium).*

*The book targets the undergraduate students of the sophomore/junior*

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*level majoring  
in science and  
engineering.*

*Pearson brings  
to you*

*Engineering  
Mechanics - an  
ideal offering  
for the complete  
course on  
engineering  
mechanics.*

*Written in a  
simple and lucid*

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*style, the book  
covers the basic  
principles of  
mechanics and  
its application  
to the solution  
of engineering  
pro*

*Solving*

*Practical*

*Engineering*

*Mechanics Proble*

*ms Statics Morgan*

*& Claypool*

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Papers

*Publishers  
Elements of  
Engineering  
mechanics  
Problems and  
Solutions in  
Engineering  
Mechanics  
Statics &  
Dynamics  
Problems and  
Solutions*

**This  
comprehensive**

*Page 38/143*

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and self-  
contained  
Papers

textbook will help students in acquiring an understanding of fundamental concepts and applications of engineering mechanics. With basic prior knowledge, the readers are

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**guided through  
important  
concepts of  
engineering  
mechanics such  
as free body  
diagrams,  
principles of  
the  
transmissibility  
of forces,  
Coulomb's law of  
friction,  
analysis of**



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**forces in  
members of truss  
and rectilinear  
motion in  
horizontal  
direction.  
Important  
theorems  
including Lami's  
theorem,  
Varignon's  
theorem,  
parallel axis  
theorem and**

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perpendicular  
axis theorem are  
discussed in a  
step-by-step  
manner for  
better clarity.  
Applications of  
ladder friction,  
wedge friction,  
screw friction  
and belt  
friction are  
discussed in  
detail. The

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**textbook is  
primarily  
written for  
undergraduate  
engineering  
students in  
India. Numerous  
theoretical  
questions,  
unsolved  
numerical  
problems and  
solved problems  
are included**

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throughout the text to develop a clear understanding of the key principles of engineering mechanics. This text is the ideal resource for first year engineering undergraduates taking an

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**introductory,  
single-semester  
course in  
engineering  
mechanics.**

**This progressive  
guide emphasizes  
the use of  
vector mechanics  
and vector  
mathematics in  
its treatment of  
statistics, and  
is the first**

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**engineering  
mechanics book  
of its kind to  
address the use  
of computational  
software for  
computing  
solutions and  
for visualizing  
physical  
properties -  
reflecting the  
latest  
developments in**

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the methods of  
analysis of  
mechanics  
problems by  
incorporating  
the highly  
sophisticated  
computational  
software  
packages  
currently  
available. Uses  
computational  
software as a

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**vector  
calculator (so  
readers can  
perform vector  
manipulations  
quickly and  
accurately,  
allowing them  
more time to  
focus on the  
fundamentals),  
and provides  
direct vector  
calculations**



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throughout  
(presenting  
systematic  
methods to solve  
some vector  
equations  
without  
expanding into  
scalar  
components).

Offers a Matrix  
Solution of  
Systems of  
Equations using

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**computational software; uses discontinuity functions to make shear and moment calculations and plots; and provides such powerful computational tools as symbolic manipulation and**

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**plotting for  
visualization of  
forces and the  
effects of  
geometry, and  
other parameters  
on internal and  
reaction forces  
and moments.  
Approximately  
1,000 problems  
and 95 worked  
sample problems  
help foster**

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**understanding,  
and all sample  
problems and the  
use of  
computational  
software  
(Mathcad,  
MATLAB,  
Mathematica and  
Maple) are  
presented in  
four separate  
manuals (one for  
each software**

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Mechanics Solved  
program).

**The only  
complete  
collection of  
prevalent  
approximation  
methods Unlike  
any other  
resource,  
Approximate  
Solution Methods  
in Engineering  
Mechanics,  
Second Edition**

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**offers in-depth coverage of the most common approximate numerical methods used in the solution of physical problems, including those used in popular computer modeling packages.**

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**Descriptions of  
each**

**approximation  
method are  
presented with  
the latest  
relevant  
research and  
developments,  
providing  
thorough,  
working  
knowledge of the  
methods and**

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**their  
principles.**

**Approximation  
methods covered  
include: \***

- Boundary element  
method (BEM) \***
- Weighted  
residuals method  
\* Finite  
difference  
method (FDM) \***
- Finite element  
method (FEM) \***



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**Finite strip/layer/prism methods  
\* Meshless  
method**

**Approximate  
Solution Methods  
in Engineering  
Mechanics,  
Second Edition  
is a valuable  
reference guide  
for mechanical,  
aerospace, and  
civil engineers,**

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as well as  
students in

these  
disciplines.

Dynamics for  
Engineers

Engineering  
Mechanics:

Statics +

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Mech S&D

Kinematics – The

Geometry of

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**Motion  
Engineering  
Mechanics:  
Statics and  
Dynamics**

*Problem Solving  
Is A Vital  
Requirement For  
Any Aspiring  
Engineer. This  
Book Aims To  
Develop This  
Ability In  
Students By*

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*Explaining The  
Basic Principles  
Of Mechanics  
Through A Series  
Of Graded  
Problems And  
Their  
Solutions. Each  
Chapter Begins  
With A Quick  
Discussion Of  
The Basic  
Concepts And  
Principles. It*

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*Then Provides  
Several Well  
Developed Solved  
Examples Which  
Illustrate The  
Various  
Dimensions Of  
The Concept  
Under  
Discussion. A  
Set Of Practice  
Problems Is Also  
Included To  
Encourage The*

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*Student To Test  
His Mastery Over  
The Subject. The  
Book Would Serve  
As An Excellent  
Text For Both  
Degree And  
Diploma Students  
Of All  
Engineering  
Disciplines.  
Amie Candidates  
Would Also Find  
It Most Useful.*

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*Engineering mechanics is one of the fundamental branches of science that is important in the education of professional engineers of any major. Most of the basic engineering courses, such as*

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*mechanics of  
materials, fluid  
and gas  
mechanics,  
machine design,  
mechatronics,  
acoustics,  
vibrations, etc.  
are based on  
engineering  
mechanics  
courses. In  
order to absorb  
the materials of*



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Papers

*engineering  
mechanics, it is  
not enough to  
consume just  
theoretical laws  
and theorems—a  
student also  
must develop an  
ability to solve  
practical  
problems.*

*Therefore, it is  
necessary to  
solve many*

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papers  
independently.

*This book is a part of a four-book series designed to supplement the engineering mechanics courses. This series instructs and applies the principles required to*

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Papers

*solve practical  
engineering  
problems in the  
following  
branches of  
mechanics:  
statics,  
kinematics,  
dynamics, and  
advanced  
kinetics. Each  
book contains  
between 6 and 8  
topics on its*

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*specific branch  
and each topic  
features 30  
problems to be  
assigned as  
homework, tests,  
and/or  
midterm/final  
exams with the  
consent of the  
instructor. A  
solution of one  
similar sample  
problem from*

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*each topic is  
provided. This  
first book  
contains seven  
topics of  
statics, the  
branch of  
mechanics  
concerned with  
the analysis of  
forces acting on  
construction  
systems without  
an acceleration*

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(a state of the static equilibrium). The book targets the undergraduate students of the sophomore/junior level majoring in science and engineering. Mechanics courses tend to provide

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*engineering  
students with a  
precise,  
mathematical,  
but less than  
engaging  
experience.*

*Students often  
view the  
traditional  
approach as a  
mysterious body  
of facts and  
“tricks” that*

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*allow idealized cases to be solved. When confronted with more realistic systems, they are often at a loss as to how to proceed. To address this issue, this course empowers students to tackle*



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Mechanics Solved  
Papers

*meaningful  
problems at an  
early stage in  
their studies.*

*Engineering  
Mechanics:  
Statics, First  
Edition begins  
with a readable  
overview of the  
concepts of  
mechanics.*

*Important  
equations are*

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Papers

*introduced, but the emphasis is on developing a “feel” for forces and moments, and for how loads are transferred through structures and machines. From that foundation, the course helps lay a*

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*motivational  
framework for  
students to  
build their  
skills in  
solving  
engineering  
problems.*

*Approximate  
Solution Methods  
in Engineering  
Mechanics  
Technology-  
Assisted Problem*

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Papers

*Solving for  
Engineering  
Education:  
Interactive  
Multimedia  
Applications  
Engineering  
Mechanics:  
Dynamics*

Explores best practices  
in assisting students in  
understanding  
engineering concepts  
through interactive and

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virtual environments.  
The first of a  
comprehensive two-  
volume treatment of  
mechanics intended for  
students of civil and  
mechanical  
engineering. Used for  
several years in courses  
at Bradley University,  
the text presents statics  
in a clear and  
straightforward way  
while emphasising

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problem solving -  
backed by more than  
350 examples used to  
clarify the discussion.  
The accompanying  
diskette contains  
EnSolve, written by the  
authors for solving  
problems in  
engineering mechanics.  
The program includes  
the following: - a unit  
converter for SI to US  
units and vice versa - a

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graphics program for plotting functions and data - a set of numerical subroutines. The graphics module boasts such features as fitting smooth splines between data, plotting regression lines and curves, and changing scales -- including from arithmetic to log and log-log.

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Mechanics: Dynamics provides a solid foundation of mechanics principles and helps students develop their problem-solving skills with an extensive variety of engaging problems related to engineering design. More than 50% of the homework problems are new, and there are also a number



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of new sample problems. To help students build necessary visualization and problem-solving skills, this product strongly emphasizes drawing free-body diagrams, the most important skill needed to solve mechanics problems.

Solving Practical  
Engineering Mechanics

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Problems  
Papers

Solving Mechanical  
Engineering Problems  
with MATLAB – 2nd  
Edition

Volume 2 Dynamics --  
The Analysis of Motion  
Engineering

Mechanics: Dynamics  
+ CONNECT Access  
Card for Eng Mech:  
S&D

This book, in its third  
edition, continues to

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focus on the basics of civil engineering and engineering mechanics to provide students with a balanced and cohesive study of the two areas (as needed by them in the beginning of their engineering education). A basic undergraduate textbook for the first-

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year students of all  
branches of  
engineering, this  
book is specifically  
designed to conform  
to the syllabus of  
Visvesvaraya  
Technological  
University (VTU).  
Imparting the basic  
knowledge in various  
facets of civil  
engineering and the  
related engineering

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structures and infrastructure such as buildings, roads, highways, dams and bridges, the third edition covers the engineering mechanics portion in eleven chapters. Each chapter introduces the concepts to the reader, stepwise. Providing a wealth of practice examples,

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the book emphasizes the importance of building strong analytical skills.

Practice problems, at the end of each chapter, give students an opportunity to absorb concepts and hone their problem-solving skills. The book comes with a companion CD containing the

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software developed using MS-Excel, to work out the problems on Forces, Centroid, Friction and Moment of Inertia.

The use of this software will enable the students to understand the concepts in a relatively better way.

**NEW TO THIS  
EDITION •**

*Page 87/143*

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Introduces a chapter on Kinematics as per the revised Civil Engineering syllabus of VTU • Updates with the latest examination Question Papers, including the one held in the month of December 2013 Statics is the first volume of a three-volume textbook on Engineering



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Mechanics. The authors, using a time-honoured straightforward and flexible approach, present the basic concepts and principles of mechanics in the clearest and simplest form possible to advanced undergraduate engineering students

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of various disciplines and different educational backgrounds. An important objective of this book is to develop problem solving skills in a systematic manner. Another aim of this volume is to provide engineering students as well as practising engineers with a solid

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foundation to help them bridge the gap between undergraduate studies on the one hand and advanced courses on mechanics and/or practical engineering problems on the other. The book contains numerous examples, along with their complete solutions.

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Emphasis is placed upon student participation in problem solving. The contents of the book correspond to the topics normally covered in courses on basic engineering mechanics at universities and colleges. Now in its second English edition, this material

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has been in use for two decades in Germany, and has benefited from many practical improvements and the authors' teaching experience over the years. New to this edition are the extra supplementary examples available online as well as the TM-tools necessary to

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Mechanics Solved  
Papers  
work with this  
method.

This item is a package containing Plesha Engineering mechanics: Statics 1e + Connect Access Card for Engineering Mechanics: Statics and Dynamics. Plesha, Gray, and Costanzo ' s Engineering Mechanics: Statics &

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Dynamics presents the fundamental concepts, clearly, in a modern context using applications and pedagogical devices that connect with today ' s students. The text features a five-part problem-solving methodology that is consistently used throughout all example problems.

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This methodology helps students lay out the steps necessary to correct problem-formulation and explains the steps needed to arrive at correct and realistic solutions. Once students have fully mastered the basic concepts, they are taught appropriate use of modern



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computational tools  
where applicable.

Further reinforcing  
the text's modern  
emphasis, the authors  
have brought  
engineering design  
considerations into  
selected problems  
where appropriate.

This sensitizes  
students to the fact  
that engineering  
problems do not have

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a single answer and many different routes lead to a correct solution. The first new mainstream text in engineering mechanics in nearly twenty years, Plesha, Gray, and Costanzo 's Engineering Mechanics: Statics and Dynamics will help your students

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learn this important  
material efficiently  
and effectively.

ENGINEERING

MECHANICS

ELEMENTS OF CIVIL

ENGINEERING AND

ENGINEERING

MECHANICS

Engineering

Mechanics: Statics

Loose Leaf Version

for Engineering

Mechanics: Dynamics

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**Explains the  
fundamental  
concepts and  
principles underlying  
the subject,  
illustrates the  
application of  
numerical methods  
to solve engineering  
problems with  
mathematical  
models, and  
introduces students**

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**This book aims to provide a quick review of MATLAB commands and teach the programming principals in a concise way.**

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**excellent companion  
to practice and learn  
how to use MATLAB  
to solve Mechanical  
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**problems at school  
and at work. This  
book focuses on not  
only solid mechanics  
problems (statics,  
dynamics, vibrations,  
dynamics of  
machines, strength  
of materials,  
engineering  
materials,  
composites, etc) but  
also on thermal**

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heat transfer, fluid  
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Costanzo's  
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Dynamics presents  
the fundamental  
concepts, clearly, in a  
modern context  
using applications  
and pedagogical  
devices that connect  
with today's  
students. The text**

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**features a four-part  
problem-solving  
methodology that is  
consistently used  
throughout all  
example problems.  
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helps students lay  
out the steps  
necessary to correct  
problem-formulation  
and explains the  
steps needed to**

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**arrive at correct and  
realistic solutions.**

**Once students have  
fully mastered the  
basic concepts, they  
are taught  
appropriate use of  
modern  
computational tools  
where applicable.  
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the text's modern  
emphasis, the**

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**authors have brought engineering design considerations into selected problems where appropriate. This sensitizes students to the fact that engineering problems do not have a single answer and many different routes lead to a**



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**correct solution. The  
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mainstream text in  
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**Mechanics**

**Engineering  
Mechanics is one  
of the  
fundamental  
branches of  
science that is  
important in the  
education of  
professional  
engineers of any  
major. Most of**

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**the basic  
engineering  
courses, such as  
mechanics of  
materials, fluid  
and gas  
mechanics,  
machine design,  
mechatronics,  
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vibrations, etc.  
are based on an  
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required to solve  
practical  
engineering  
problems in the  
following  
branches of  
mechanics:  
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**book contains 6-8  
topics on its  
specific branch  
and each topic  
features 30  
problems to be  
assigned as  
homework, tests,  
and/or  
midterm/final  
exams with the  
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**existing between  
the forces acting  
on the objects  
and the motion of  
these objects.**

**This book targets  
undergraduate  
students at the  
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format, with a  
gradual  
development of  
the subject from  
simple concepts  
to advanced  
topics so that the  
beginning  
undergraduate is  
able to  
comprehend the  
subject with ease.**

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**Example**

**problems are  
chosen from  
engineering  
practice and all  
the steps involved  
in the solution of  
a problem are  
explained in  
detail. The book  
also covers  
advanced topics  
such as the use of**

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**virtual work  
principle for  
finite element  
analysis;  
introduction of  
Castigliano's  
theorem for  
elementary  
indeterminate  
analysis; use of  
Lagrange's  
equations for  
obtaining**

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**equilibrium relations for multibody system; principles of gyroscopic motion and their applications; and the response of structures due to ground motion and its use in earthquake engineering. The**



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**book has plenty  
of exercise  
problems-which  
are arranged in a  
graded level of  
difficulty-,  
worked-out  
examples and  
numerous  
diagrams that  
illustrate the  
principles  
discussed. These**

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**features along  
with the clear  
exposition of  
principles make  
the text suitable  
for the first year  
undergraduate  
students in  
engineering.**

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Engineering  
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Dynamics presents  
the  
fundamental  
concepts clearly,  
in a modern  
context using  
applications and  
pedagogical  
devices that  
connect with  
today's  
students. .The**

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**text features a  
five-part problem-  
solving  
methodology that  
is consistently  
used throughout  
all example  
problems. This  
methodology  
helps students lay  
out the steps  
necessary to  
correct problem-**

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**formulation and explains the steps needed to arrive at correct and realistic solutions. Once students have fully mastered the basic concepts, they are taught appropriate use of modern**

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tools where appli  
cable..Further  
reinforcing the  
text's modern  
emphasis, the  
authors have  
brought  
engineering  
design  
considerations  
into selected  
problems where**

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nearly twenty  
years, Plesha,  
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oic 1/2s Engineerin  
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this important  
material**



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**and Analyzing**

**Systems in**

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## **Equilibrium**

Engineering  
Mechanics, one  
of the oldest  
branches of  
physical  
science, is a  
subject of  
enormous  
importance.

Although it is  
taught in the  
first year of

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engineering,  
its foundation  
is rooted in  
the two other  
fundamental  
subjects i.e.,  
applied  
mathematics and  
physics.

Basically,  
Engineering  
Mechanics is a  
subject that

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deals with the action of forces. It is broadly classified under Statics and Dynamics. Statics deals with the action of forces on the rigid bodies at rest whereas

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dynamics deals with motion characteristics of the bodies when subjected to force. The primary purpose of writing this book is to build basic concepts of engineering mechanics along

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makes the  
students feel  
better in  
understanding  
the solution.