

McGraw Hill Engineering



Powered by Connect Engineering, McGraw Hill's resources are designed to help students achieve success in a click. Resources are powered by Connect for Engineering, an easy-to-use learning platform that gives instructors access to engaging, assignable and assessable tools. All of these tools are tied to learning objectives that support student success and help students develop positive learning behaviors.

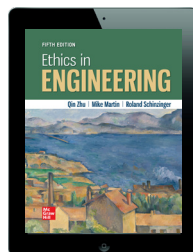
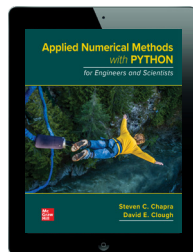
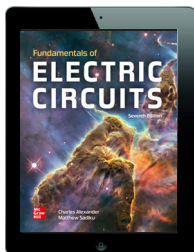
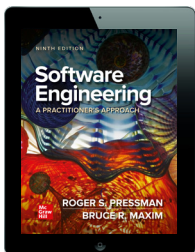
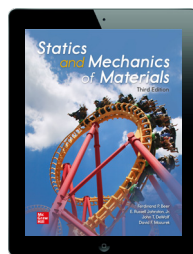
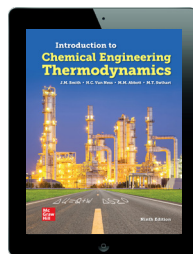
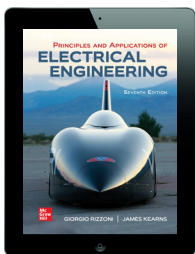
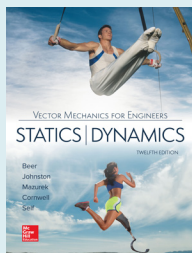


TABLE OF CONTENTS

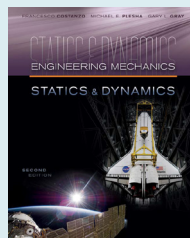
Engineering Titles with Connect	2
Connect.....	6
SmartBook.....	8
Connect Reports.....	9
Training Opportunities.....	10

Engineering Titles with Connect

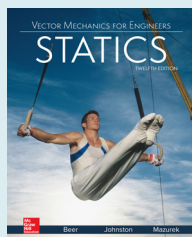
Engineering Mechanics



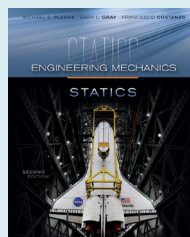
Vector Mechanics for Engineers: Statics and Dynamics, 12e
(Connect Updates Fall 2021)
Ferdinand Beer
E. Russell Johnston, Jr.
David Mazurek
Phillip Cornwell
Brian Self



Engineering Mechanics: Statics and Dynamics, 2e
(3e publishing Spring 2022)
Michael Plesha
Gary Gray
Francesco Costanzo



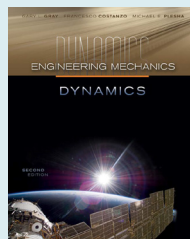
Vector Mechanics for Engineers: Statics, 12e
(Connect Updates Fall 2021)
Ferdinand Beer
E. Russell Johnston, Jr.
David Mazurek



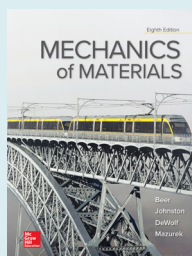
Engineering Mechanics: Statics, 2e
(3e publishing Spring 2022)
Michael Plesha
Gary Gray
Francesco Costanzo



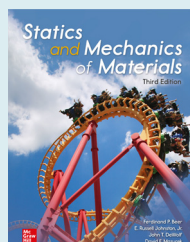
Vector Mechanics for Engineers: Dynamics, 12e
(Connect Updates Fall 2021)
Ferdinand Beer
E. Russell Johnston, Jr.
Phillip Cornwell
Brian Self



Engineering Mechanics: Dynamics, 2e
(3e publishing Spring 2022)
Michael Plesha
Gary Gray
Francesco Costanzo

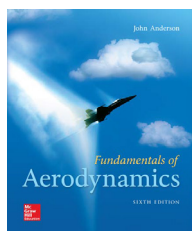


Mechanics of Materials, 8e
Ferdinand Beer
E. Russell Johnston, Jr.
John DeWolf
David Mazurek



Statics and Mechanics of Materials, 3e
Ferdinand Beer
E. Russell Johnston, Jr.
John DeWolf
David Mazurek

Aeronautical Engineering

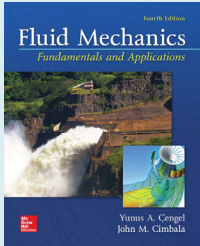


Fundamentals of Aerodynamics, 6e
John Anderson



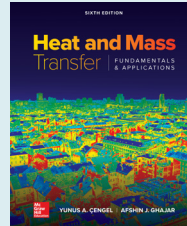
Introduction to Flight, 9e
John Anderson

Thermal and Fluids Engineering



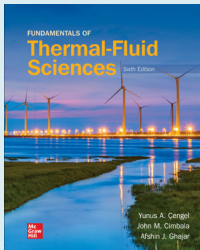
Fluid Mechanics: Fundamentals and Applications, 4e

Yunus Cengel
John Cimbala



Heat and Mass Transfer: Fundamentals and Applications, 6e

Yunus Cengel
Afshin Ghajar



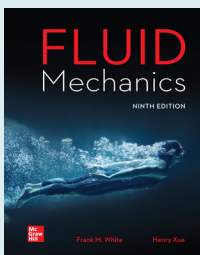
Fundamentals of Thermal-Fluid Sciences, 6e

Yunus Cengel
Robert Turner
John Cimbala



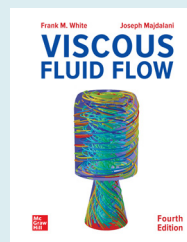
Thermodynamics: An Engineering Approach, 9e

Yunus Cengel
Michael Boles



Fluid Mechanics, 9e

Frank M. White



Viscous Fluid Flow, 4e

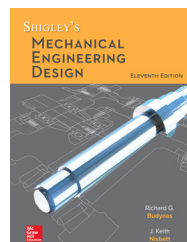
Frank M. White
Joe Majdalani

Mechanical Engineering



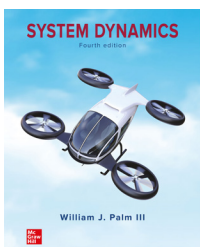
Introduction to Mechatronics and Measurement Systems, 5e

David G. Alciatore
Micheal B. Histan



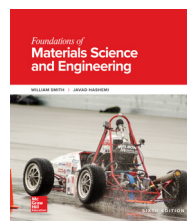
Shigley's Mechanical Engineering Design, 11e

Richard Budynas
Keith Nisbett



System Dynamics, 4e

William Palm III

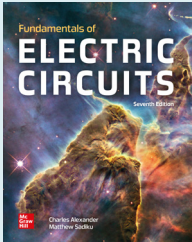


Foundations of Materials Science and Engineering, 6e

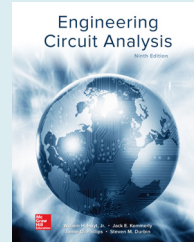
(7e publishing Spring 2022)

William F. Smith
Javad Hashemi

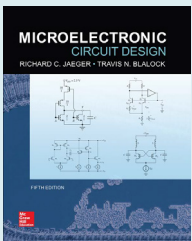
Electrical Engineering



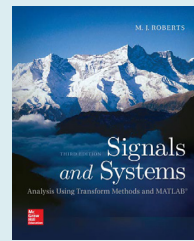
Fundamentals of Electric Circuits, 7e
Charles Alexander
Matthew Sadiku



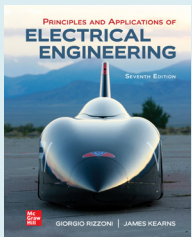
Engineering Circuit Analysis, 9e
William Hayt
Jack Kemmerly
Jamie Phillips
Steven Durbin



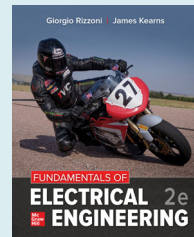
Microelectronic Circuit Design, 5e
Richard Jaeger
Travis Blalock



Signals and Systems: Analysis Using Transform Methods & MATLAB, 3e
M.J. Roberts

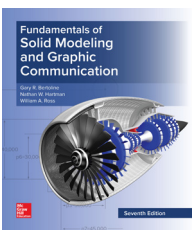


Principles and Applications of Electrical Engineering, 7e
Giorgio Rizzoni
James Kearns

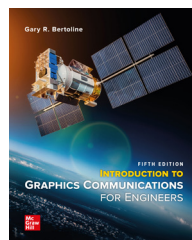


Fundamentals of Electrical Engineering, 2e
Giorgio Rizzoni
James Kearns

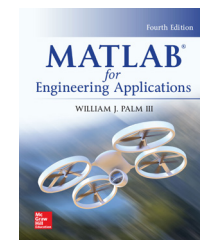
General Engineering



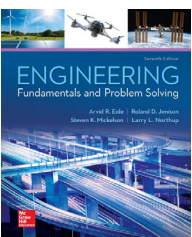
Fundamentals of Solid Modeling and Graphics Communication, 7e
Gary Bertoline
Eric Wiebe
Nathan Hartman
William Ross



Introduction to Graphics Communications for Engineers, 5e
Gary Bertoline



MATLAB for Engineering Applications, 4e
(5e publishing Spring 2022)
William Palm III



Engineering Fundamentals and Problem Solving, 7e
(8e publishing Spring 2022)
Arvid Eide
Roland Jenison
Larry Northup
Steven Mickelson

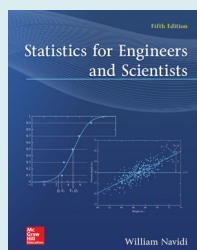


Foundations of Engineering, 2e
(3e publishing Spring 2022)
Mark Holtzapple
W. Dan Reece

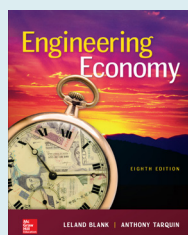


Technical Writing for Engineers, 3e
(4e publishing Spring 2022)
Leo Finkelstein

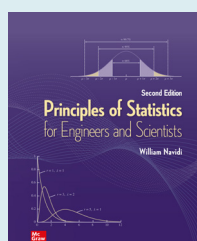
Industrial Engineering



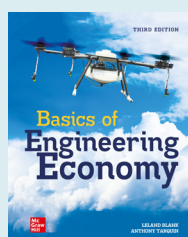
Statistics for Engineers and Scientists, 5e
William Navidi



Engineering Economy, 8e
Leland Blank
Anthony Tarquin



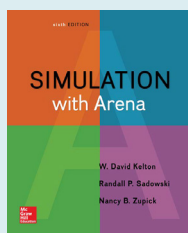
Principles of Statistics for Engineers and Scientists, 2e
William Navidi



Basics of Engineering Economy, 3e
Leland Blank
Anthony Tarquin

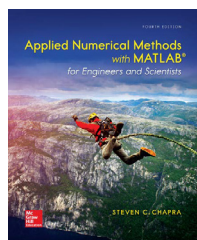


Technology Ventures: From Idea to Enterprise, 5e
Thomas H. Byers
Richard C. Dorf
Andrew J. Nelson

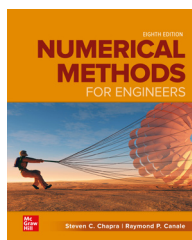


Simulation with Arena, 6e
W. David Kelton
Randall Sadowski
Nancy Zupick

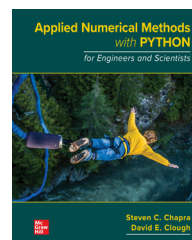
Numerical Methods



Applied Numerical Methods with MATLAB for Engineers and Scientists, 4e
(5e publishing Spring 2022)
Steven Chapra

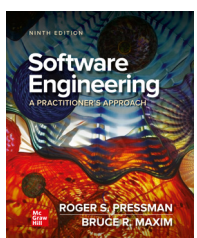


Numerical Methods for Engineers, 8e
Steven Chapra
Raymond Canale

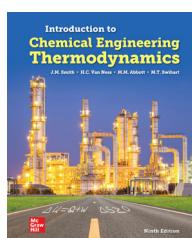


New! Numerical Methods with Python, 1e
Steven Chapra
David Clough

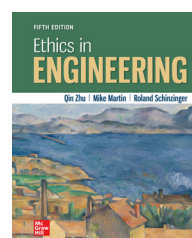
Additional Titles



Software Engineering: A Practitioner's Approach, 9e
Roger Pressman
Bruce Maxim



Introduction to Chemical Engineering Thermodynamics, 9e
J.M. Smith
Hendrick Van Ness
Michael Abbott,
Mark Swihart



New! Ethics in Engineering, 5e
Mike Martin

What is Connect?

Connect is a course management and adaptive learning solution that enhances your unique voice and teaching style. Its flexibility allows you to create, edit, upload, share, and adjust materials to meet your needs. Connect also integrates with the three major learning management systems: Blackboard, D2L, and Canvas. We work to give you and your students access to registration, attendance, assignments, grades, and course resources in real time, in one location.

Support at Every Step

- Seamless LMS integration
- Training
- In-product help and tutorials
- 1:1 or group help

Robust Analytics & Reporting

- Easy-to-read reports
- Individual and class performance reports
- Auto grading



Quality Content & Learning Resources

- Remote proctoring
- eBooks available offline
- Easy course sharing
- Lecture capture

Homework & Adaptive Learning

- Curated question banks
 - Auto-graded with feedback
- Writing Assignment/Rubric Tool
- SmartBook 2.0—Adaptive Reading
- Time-saving tools
- Customized to individual needs
- Algorithmic questions
- Ability to add your own questions
- Free Body Diagram Tool (select titles)
- Activity-Based Assignments (select titles)

“

Using Connect/SmartBook has improved my course by providing students with guided reading that helps them with the assigned practice problems.

”

—Circuits Professor, Virginia State University

Affordable Options at Every Turn



Rent It

Affordable print and digital rental options through our partnerships with leading textbook distributors including Amazon, Barnes & Noble, Chegg, Follett, and more.



Go Digital

A full and flexible range of affordable digital solutions ranging from Connect, ALEKS, inclusive access, mobile apps, OER and more.



Get Print

Students who purchase digital materials can get a loose-leaf print version at a significantly reduced rate to meet their individual preferences and budget.

www.mheducation.com/highered/explore/affordability-outcomes.html

What is Math Prep for Statics?

We know that you welcome a group of students with a wide range of pre-requisite knowledge. ALEKS Math Prep for Statics is designed to support this challenge. ALEKS is a mastery-based learning platform that identifies what your students know, what they don't know, and what they are ready to learn.

Why does ALEKS Math Prep for Statics work?

Fields of mathematical knowledge have a logical structure. ALEKS uses this knowledge structure to make inferences about what a student knows and doesn't know. Based on ALEKS' knowledge check assessment, ALEKS will recognize each student's unique knowledge state. ALEKS guides students on the most efficient path through the knowledge structure by targeting their individual needs for instruction. It does not rely on a student self-evaluation nor a one-size-fits-all model. Rather, ALEKS uses a unique cycle of learning and assessment to keep each student on the right path.

What topics are covered in ALEKS Math Prep for Statics?

The knowledge structure of ALEKS Math Prep for Statics has more than 130 topics. These topics will review concepts from statics and present mathematical material for statics.

What is SmartBook?

Available within McGraw Hill Connect, SmartBook® makes study time as productive and efficient as possible. It identifies and closes knowledge gaps through a continually-adapting reading experience. The student's knowledge and self-reported confidence enables SmartBook to provide each student with long-term retention solutions. Focusing on closing knowledge gaps and long-term retention ensures that every minute spent with SmartBook is returned to the student as a value-added minute.

Multiple Choice Question

Rigid body analysis rests on the fundamental assumption that the effect of a given force on a body remains unchanged if that force is moved _____.

- ☐ perpendicular to its line of action
- ☐ perpendicular to the axis of rotation
- ☐ along the axis of symmetry
- ☐ along the line of action

Need help? Review these concept resources.

Read About the Concept

Rate your confidence to submit your answer: High Medium Low

Reading

Yellow highlighting provides students with just-in-time learning, focusing on the critical concepts and topics within the chapter.

Probing questions help students check their knowledge and confidence, and hone in on the concepts they don't understand to improve their performance.

3.1A External and Internal Forces

Forces acting on rigid bodies can be separated into two groups: (1) external forces and (2) internal forces.

1. **External forces** are exerted by other bodies on the rigid body under consideration. They are entirely responsible for the external behavior of the rigid body, either causing it to move or ensuring that it remains at rest. We shall be concerned only with external forces in this chapter and in [Chaps. 4 and 5](#).

2. **Internal forces** hold together the particles forming the rigid body. If the rigid body is structurally composed of several parts, the forces holding the component parts together are also defined as internal forces. We will consider internal forces in [Chaps. 6 and 7](#).

As an example of external forces, consider the forces acting on a disabled truck that three people are pulling forward by means of a rope attached to the front bumper ([Fig. 3.1a](#)). The external forces acting on the truck are shown in a **free-body diagram** ([Fig. 3.1b](#)). Note that this free-body diagram shows the entire object, not just a particle representing the object. Let us first consider the weight of the truck. Although it embodies the effect of the earth's pull on each of the particles forming the truck, the weight can be represented by the single force W . The point of application of this force—that is, the point at which the force acts—is defined as the **center of gravity** of the truck. (In [Chap. 5](#), we will show how to determine the location of centers of gravity.) The weight W tends to make the truck move vertically downward. In fact, it would actually cause the truck to move downward, i.e., to fall, if it were not for the presence of the ground. The ground opposes the downward motion of the truck by means of the reactions R_1 and R_2 . These forces are exerted by the ground on the truck and must therefore be included among the external forces acting on the truck.

Fig. 3.1 (a) Three people pulling on a truck with a rope; (b) free-body diagram of the truck, shown as a rigid body instead of a particle.

The people pulling on the rope exert the force F . The point of application of F is on the front bumper. The force F tends to make

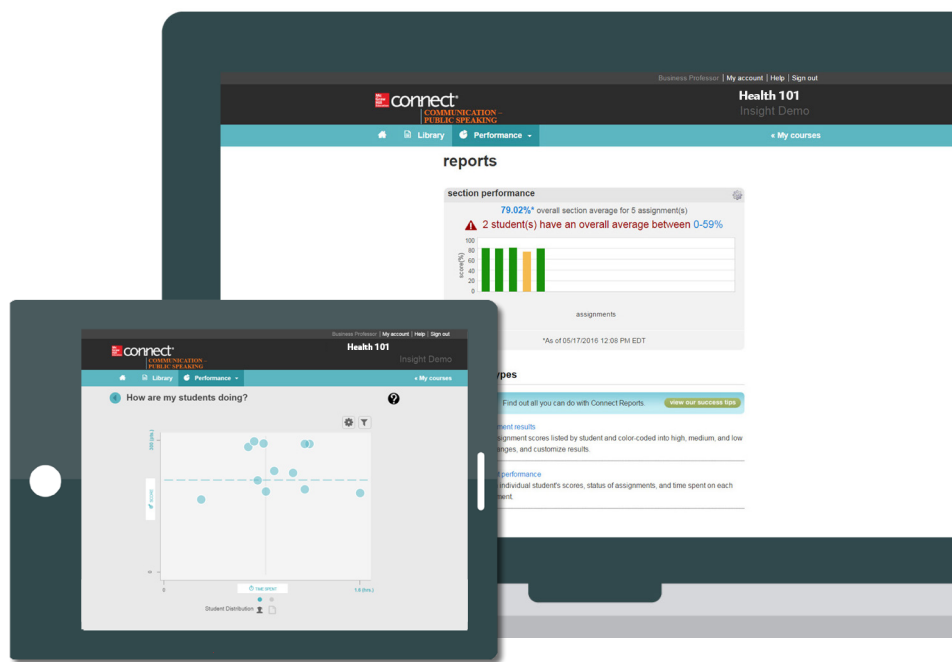
“ SmartBook made it easy for me to learn the concepts and gave me the confidence I needed to understand and complete the Connect homework problems. ”

—Naazneen Ibtehaj, Biomedical Engineering Student, University of Texas at Austin

What are Connect Reports?

Student Performance

Connect Reports keep instructors informed about how each student, section, and class is performing, allowing for more productive use of lecture and office hours. Instructors have the ability to assess and analyze students' progress on assignments throughout the term, seamlessly and with ease.



Support at Every Step



SupportAtEveryStep.com is your one stop shop to find contact information for our live support teams and key self-service resources for everything from decision-making resources, class prep, first-day-of-class, tips for the classroom and more. Whether you use the text alone or one of our award-winning digital courseware products, you'll find what you need at SupportAtEveryStep.com.



Just getting started? Want to take it to the next level? Either way, your dedicated McGraw Hill Implementation Consultant can help you build your course, create assignments and set policies. Need help with reports or adjusting your course to improve outcomes? Click on "Courseware Consult" at SupportAtEveryStep.com and set up an appointment today.



Need a reality check? Having a direct line to an instructor who's been in your shoes can make all the difference. That's why we have over 600 faculty consultants across the country to share their experiences and provide personalized guidance.



How can we help? No matter your tech questions, the McGraw Hill Tech Support Group is ready to help with a searchable database of FAQs and live support for you and your students. Reach out at (800) 331.5094, or connect online by going to SupportAtEveryStep.com and selecting "Tech Support."

Training Opportunities



Upon selecting McGraw Hill products for your course, you will receive the following commitment to you and your students needs.

Instructor Training Needs

Training on Connect Engineering is conducted by webinar, as well as on campus, depending on instructional needs and desires.

- Your Implementation Team is dedicated to efficient implementation of Connect Engineering and SmartBook.
- Your Digital Faculty Consultants, current Engineering instructors using Connect, are available for best practices discussions.

Student Training Needs

- McGraw Hill can conduct “First Day of Class” student trainings to ensure that students access and navigate Connect Engineering effectively as well as efficiently.
- McGraw Hill offers mid-semester student trainings and videos to help them utilize reporting features to build more effective study habits.
- Customer Service is available regularly, including during non-traditional business hours (e.g., Sunday evenings). Hours and Personnel are heightened during rush times, such as registration and finals, and this will continuously be monitored for times of greater need.

Support Commitment

- McGraw Hill provides on-going support for Connect Engineering and all digital resources that accompany our programs for the life of the adoption. You can expect unparalleled service from our full national sales, marketing and editorial teams.
- We guarantee a 24-hour response time to any questions, needs or issues which might arise throughout the life of the adoption.

Desk Copy Commitment

- McGraw Hill provides instructor desk copies for all instructors.

McGraw Hill is proud to sponsor two prestigious ASEE awards:

*ASEE Mechanics Division Beer and Johnston New Educator Awards
ASEE Engineering Technology Council, James H. McGraw Award*