



Adult Books

Dym, Clive L. ***Engineering Design: A Project-based Introduction***. New York: John Wiley, 2004.

Introduces conceptual design methods and project management tools through description, example, and case study. Two design projects are consistently drawn upon to illustrate the design methods and management tools. Also covers important topic of reporting the results of a design project and provides useful insights into team behaviors and dynamics.

Florman, Samuel C. ***The Existential Pleasures of Engineering***. New York: St. Martin's Griffin, 1996.

Humans have always sought to change their environment-building houses, monuments, temples, and roads. In the process, they have remade the fabric of the world into newly functional objects that are also works of art to be admired. Samuel Florman explores how engineers think and feel about their profession. A deeply insightful and refreshingly unique text, this book corrects the myth that engineering is cold and passionless.

Garratt, James. ***Design and Technology***. New York: Cambridge University Press, 1996.

Examines the stages of the design process of industrially manufactured products, covering such topics as aesthetics, ergonomics, structures, and materials. Includes related questions and activities.

Lienhard, John H. ***The Engines of Our Ingenuity: An Engineer Looks at Technology and Culture***. New York: Oxford University Press, 2000.

In this fascinating book, Lienhard gathers his reflections on the nature of technology, culture, and human inventiveness. The book brims with insightful observations. Lienhard writes that the history of technology is a history of us--we are the machines we create.

Museum of Science. ***Engineering is Elementary: Storybooks, and Teacher Guides***. Boston, MA: Museum of Science, 2007.

The *Engineering is Elementary* (EiE) project aims to foster engineering and technological literacy among children. EiE has created 20 research-based, standards-based, and classroom-tested curriculum that integrates engineering and technology concepts and skills with elementary science topics. EiE materials also connect with literacy, social studies, and mathematics. Through interesting

engineering design challenges children are invited to apply their knowledge of science, engineering, and their problem solving skills, as they design, create, and improve possible solutions.

Norman, Donald A. ***The Design of Everyday Things***. New York: Doubleday, 1990.

A popular, entertaining, and insightful analysis of why some products satisfy customers while others only frustrate them.

Petroski, Henry. ***To Engineer is Human: The Role of Failure in Successful Design***. New York: Vintage Books, 1992.

Petroski covers many of the best known examples of well-intentioned but ultimately failed design in action -- the galloping Tacoma Narrows Bridge (which you've probably seen tossing cars willy-nilly in the famous black-and-white footage), the collapse of the Kansas City Hyatt Regency Hotel walkways -- and many lesser known but equally informative examples.

Petroski, Henry. ***Pushing the Limits: New Adventures in Engineering***. New York: Knopf, 2004.

Pushing the Limits celebrates some of the largest things we have created--bridges, dams, buildings--and provides a startling new vision of engineering's past, its present, and its future. Along the way it highlights our greatest successes, like London's Tower Bridge; our most ambitious projects, like China's Three Gorges Dam; our most embarrassing moments, like the wobbly Millennium Bridge in London; and our greatest failures, like the collapse of the twin towers on September 11. Throughout, Petroski provides fascinating and provocative insights into the world of technology with his trademark erudition and enthusiasm for the subject.

Petroski, Henry. ***Remaking the World: Adventures in Engineering***. New York: Alfred A. Knopf, 1997.

From the Ferris wheel to the integrated circuit, feats of engineering have changed our environment in countless ways, big and small. In *Remaking the World: Adventures in Engineering*, Duke University's Henry Petroski focuses on the big: Malaysia's 1,482-foot Petronas Towers as well as the Panama Canal, a cut through the continental divide that required the excavation of 311 million cubic yards of earth.

Petroski, Henry. ***Small Things Considered: Why There is no Perfect Design***. New York: Alfred A. Knopf, 2003.

Henry Petroski looks at some of our most familiar objects and reveals that they are, in fact, works in progress. For there can never be an end to the quest for the perfect design.

Vincenti, W. G. ***What Engineers Know and How They Know It: Analytical Studies from Aeronautical History***. Baltimore, MD: Johns Hopkins University Press, 1990.

Examining previously unstudied historical cases, Vincenti shows how engineering knowledge is obtained and, in the book's concluding chapters, presents a model to help explain the growth of such knowledge.

Young Adult Books

Baine, Celeste. ***Is There an Engineer Inside You?: A Comprehensive Guide to Career Decisions in Engineering.*** Ruston, LA: Bonamy Pub., 2002.

The perfect book for students considering a career in engineering! *Is There An Engineer Inside You?* provides a detailed description of the engineering profession and many engineering specialties. The book includes guidance on planning for an engineering career -- from selecting the right college to preparing career groundwork.

Evans, David. ***Building Things.*** New York: Dorling Kindersley, 1993.

Examines, through a series of simple experiments, the different materials used to make a variety of objects.

Forbes, Charlotte. ***Those Amazing Engineers.*** Englewood Cliffs, NJ: Trilogy Publications, 2005.

Describes the different types of engineers, from Civil to Software Engineers. Also describes the different things engineers do for us in everyday life.

Grace, Catherine O'Neill. ***I Want To Be – An Engineer.*** San Diego, CA: Harcourt Brace, 1997.

Discover various careers in engineering, including civil, mechanical, and electrical engineering, as well as robotics and animatronics, which are used to create many of the special effects used in movies.

Hatch, Sybil E. ***Changing Our World: True Stories of Women Engineers.*** Reston, VA: American Society of Civil Engineers, 2006.

Through real-life stories, the full-color, 256-page *Changing Our World: True Stories of Women Engineers* celebrates the contributions of women engineers to every aspect of modern life.

Morgan, Sally. ***Structures.*** New York: Facts on File, 1993.

Examines a variety of manufactured structures, from skyscrapers to airplanes, and discusses how they imitate natural structures like eggs and seed pods in protecting and transporting living things.

Vanderwarker, Peter. ***The Big Dig: Reshaping an American City.*** Boston, MA: Little, Brown and Co., 2001.

In Boston Harbor a barge maneuvers a huge floating section of a steel tunnel into place, then sets it gently onto the harbor floor. High above the Charles River workers place ten lanes of roadway on what will be the widest cable-stayed

bridge in the world. Boston will never look the same. Since 1991 Boston has been the scene of the largest public construction project in American history. The Central Artery/Tunnel Project-the "Big Dig"-is the solution to problems that for decades have caused major headaches for people driving in and out of this major American city. Peter Vanderwarker takes us behind the scenes of this complex, awe-inspiring project.

Media

Building Big: Bridges [VHS]. 55 min. WGBH, 2000.

Combines location sequences and animation to show the building of bridges. Building small demonstrates the building of a bridge by children with drinking straws.

Engineering an Empire, vol. 1-5 [DVD]. 560 min. The History Channel, 2006.

Hosted by Peter Weller, *Engineering an Empire* examines the most magnificent and sophisticated civilizations in history through the lens of their astounding engineering feats.

Extreme Engineering: Collection One [DVD]. 2 discs, 348 min. Discovery Channel, 2007.

Join the Discovery team for a globe-spanning look at some of the most astounding feats of *Extreme Engineering* as mankind soars to new heights of imagination and ingenuity in the struggle to meet the challenges of the modern world.

Engineering the Impossible [DVD]. 120 min. Discovery Channel, 2003.

Witness how far engineering can go in this two-hour adventure that explores the outer range of possibility. Just how feasible are such extraordinary ventures as a Europe-to-Africa bridge, a tunnel across the Strait of Gibraltar, a 170-story skyscraper or, amazingly, floating ocean cities? Find out with the aid of remarkable state of the art graphics and technology. Then go out into the real world to meet the people and explore the technology that may one day turn these dreams into reality.

Building an Engineer: How to Help Your Students [E DVD]. New Jersey Institute of Technology, 2002.

Throughout this two-sided DVD, middle- and high school educators will be introduced to experts in the field of engineering and engineering education. These experts discuss topics that include types of engineering, entering industry, parent and community involvement, and gender issues.