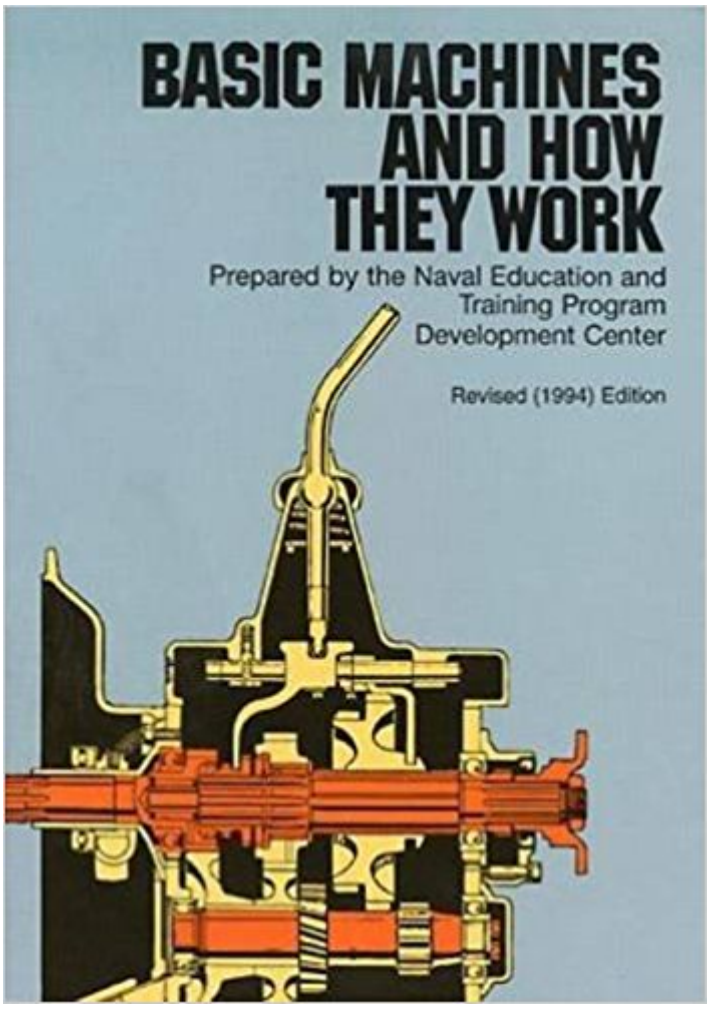
Basic Machines And How They Work



Synopsis

This revised edition of an extremely clear Navy training manual leaves nothing to be desired in its presentation. Thorough in its coverage of basic theory, from the lever and inclined plane to internal combustion engines and power trains, it requires nothing more than an understanding of the most elementary mathematics.Beginning with the simplest of machines â ” the lever â ” the text proceeds to discussions of the block and tackle (pulleys and hoists), wheel and axle, the inclined plane and the wedge, the screw, and different types of gears (simple, spur, bevel, herringbone, spiral, worm, etc.). A chapter on the concept of work discusses the measurement of work, friction, and efficiency; this is followed by investigations of power, force, and pressure, with explanations of the uses of scales, balances, gauges, and barometers. The fundamentals of hydrostatic and hydraulic machines (such as the hydraulic braking system and the hydraulic press) are discussed in detail.The remaining chapters cover machine elements (bearings and springs), basic mechanisms (gear differential, couplings, cams, clutches), the internal combustion engine and power trains (including explanations of various transmission systems â ” synchromesh, auxiliary, etc.).Every concept is clearly defined, and discussions always build easily from elementary theory to specific applications familiar to anyone with the slightest interest in mechanics. Important concepts, machine components, and techniques are clearly illustrated in more than 200 diagrams, drawings, and cross-sections that reveal inner workings â ” all of these help to clarify even further an already clear and well-organized presentation.Although it was originally designed for use in U.S. Naval Training Schools, this book can be used to great advantage as a basic text in mechanical engineering in standard technical schools, and it will be immensely valuable even to lay readers who desire a basic knowledge of mechanics.

Book Information

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Customer Reviews

Got this book as a gift for my father, a former Navy Machinest's Mate. He loved it and it brought back old memories. The lessons were clear and concise with the text and copious detailed graphics working well together. Basic Machines and How They Work starts with explaining the classical simple machines, lever, inclined plane, pully and its relation to the lever, compound pully, and screw and its relation to the inclined plane. Book then proceeds to combine these simple machines and explain how these simple machines build up to more complicated mechanical structures: clutches, transmissions, and internal combustion engines, all with a sailor's point of view and sprinkled with nautical jargon. A good basis, too, for high school physics students.

I was in the Navy so I'm partial I guess but I think this is a great book for anyone. Great basics of machines, physics and mechanics. A really good introduction or refresher. If you're thinking about going in to Engineering or Physics get this book and commit to knowing this stuff really really well. It will serve you the rest of your life/career.Math needed is simple algebra. Good diagrams and pictures and great examples for added context.

Good book for a crash course in basic machinery. The graphics are a little hard to see, but after enough staring you can visualize the gears turning, the pulleys rotating, and the differential working. Recommended.

I've had a copy of this book for quite sometime. Recently, I bought more to give to kids in the family who have mechanical interests.This is an excellent primer starting from levers and proceeding simply but building to how the internal combustion and manual transmission works.A definite read for anyone with wants a simple explanation of basic mechanical systems or those who just like to read increasingly better presentations of those topics they throw at you when learning basic physics and engineering.There is some inadvertent humor. The chapter on the block and tackle asks you to remember when you watch movers take a piano out a fourth story window, handling it with ease only a rope. Well, no, even in my 50s, I can't say I ever saw that outside of a Bugs Bunny cartoon or black and white movie. But then, the machines remain the same and are still used today although generally with hydraulic-operated drum doing the hauling.

This is a very fundamental text and as such it is a excellent basis for further study in the subjects of mechanics and physics. You would be surprised how most people especially the younger generation, though clearly comfortable with current technology especially the use of electronic devices, cannot grasp the simple concept of a lever arm or why you need to understand geometry, trig functions, basic physical properties of fluids, etc... Anyway, I liked it and I keep it handy on my desk for occasions when simple examples are required for clarification purposes. A good follow on text is "Making Things Move" by Dustyn Roberts, also well written for the layman, student or hobbyist.

For people who need step by step explanations and accompanied withsketches and anecdotes, this is the booklet to look for.It is dated, yes it is. But shown to youngsters some days ago, they allliked it and found it very handy next to their up-to-date textbooks.Explaining it does well. And the text itself is sometimes even humoresqein its way of describing things. Even for nowadays eyes, it has a value.

Great read for anyone interested in the basics of machinery.

This is an awesome little book.For those who have taken some basic science classes, a good part of it will be review. But, it gives clear and simple explanations of a lot of different types of basic machinery which you won’t find in many other books. If you want a short primer on basic machinery, this is the book for you.

Advantage: How to Win the War for Talent by Giving Employees the Workspaces they Want, the Tools they Need, and a Culture They Can Celebrate The 100 Best Business Books of All Time: What They Say, Why They Matter, and How They Can Help You Miracles: What They Are, Why They Happen, and How They Can Change Your Life Defeating ISIS: Who They Are, How They Fight, What They Believe Queens of the Ice: They were fast, they were fierce, they were teenage girls (Lorimer Recordbooks) Health Insurance And Managed Care: What They Are and How They Work The Big Book of Blaze and the Monster Machines (Blaze and the Monster Machines) Vintage Coca-cola Machines a Price and Identification Guide to Collectible Coolers and Machines Hospitals: What They Are And How They Work (Griffin, Hospitals) Mighty Monster Machines (Blaze and the Monster Machines)