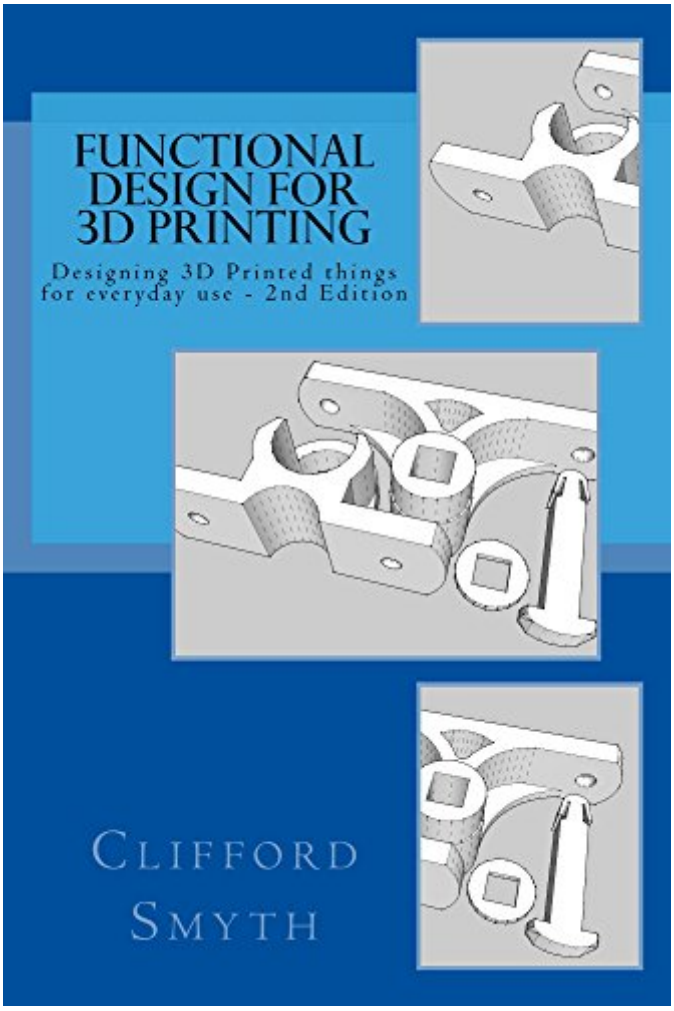
Functional Design For 3D Printing 2nd Edition



Synopsis

This improved second edition features twice the illustrations, a more readable format, and tons of additional information.Second Edition:3D Printing is changing the way we think about design, distribution, and manufacturing. By bringing the factory to the desktop, this technology opens the door to a multitude of new opportunities, and challenges paradigms from the drawing board to the boardroom. Designing usable products for 3D printing poses some unique challenges, and blends the roles of designer and engineer. In Functional Design for 3D Printing, the author explains and instructs how to leverage the strengths and minimize the weaknesses of the 3D printing process. From material selection to design details that will tolerate the design-to-printing process, this book gives the reader the tools to transform their designs into durable, useful products that print reliably on a variety of machines.Functional Design for 3D Printing will help you to:- Minimize printing time, material use, and weight- Minimize the chance of print failure, on a variety of machines and software- Make interlocking / snap fit joints- Maximize strength for maximum utility- Make objects that flex without breaking- Incorporate multiple materials into your design for multi-extruder machines- Reduce stress concentrations for maximum durability- Solve bed adhesion issues in your design- Use the correct structural design paradigm, including mixed paradigms for maximum utility- Decide how and when to use support; when it is worth it to design support features into your model- Design objects to print in multiple materials or colors- Turn your design ideas into practical designs that print efficiently and assemble into a durable, functional object.Also included are many more practical details on the design process, including appendices on printing very thin, flexible structures, printer calibrations, structural strength, and more.If you are an experienced designer, Functional Design for 3D Printing will show you design practices that will help you to quickly create functional, printable objects well beyond what is possible with simple model-to-printing work-flows.If you are a novice designer, Functional Design for 3D Printing will be a useful supplement and reference, giving you the technical framework of functional design, helping you to progress from neophyte to high proficiency with a minimum of trial and error. Functional Design for 3D Printing covers the intersection of design, printing, and utility, enabling the reader to accelerate their path to creating high utility objects within 3D design and printing workflows. This volume will help you to incorporate design practices that open up the possibilities for durable, functional, printable objects that print quickly and reliably- delivering the full potential of the â œdesktop factoryâ •.180 pages, 78 illustrations

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Customer Reviews

I am an engineer and use 3D printing at work and at home, and learned a lot about 3D printing and designing and optimizing parts for the 3D printing process from this book. I will use what I learned to improve my designs and to get better prints.These areas are especially useful to me:- Part orientation on the print bed to optimize strength.- Ways to divide your model into several pieces to improve strength, surface finish and make it print more reliably.- A formula and good explanation of the relationship between nozzle diameter and wall thickness to ensure thin walls will be filled properly and not unintentionally hollow.- Excellent illustrations on snap fit designs and design factors to consider to make them work properly.- Design guidelines for fastening and joint design with suggested tolerances to use as a starting point.I will definitely reread this book and use it as a reference when designing and printing parts, and when troubleshooting failed prints.

This book provides a wealth of rules, guidelines, and insights to help you create designs that print and behave properly. It does a wonderful job of explaining all the strange effects that can make even simple prints fail, and how to easily minimize or compensate for them. It only lacks a short

introduction to mechanical force terminology (Compression, Tension, etc.) and the principle of Stress Localization. As others here have suggested, buy the print version so you can highlight it and keep it next to your printer.

I am a 3D printing beginner but an engineer. This is an excellent book for serious 3D printing design instruction. It is not a tutorial but gives great insights into how to design for printing success.

This is probably the best book on design for 3D printing.The book is very clear, with practical examples. It covers each and every one of the areas that anyone who wants to design something to be printed need to know.Simply superior!

An excellent book, both new comers to the world of 3D printing and for experienced users looking for a quick reference or refresh.In the world of 3D printing the number of potential problems are as numerous as their possible solutions and it would be impossible for any book to give advise to cater for each specific scenario. However, if you're looking to design better models or further your understanding of what works and why, look no farther.

Short and to the point, this book has some great ideas for working with 3D printed designs. It clearly states the issues and provides nice real world solutions to the types of problems you can run into. I'm still a 3D printing newbie and this was a great help to me. The Kindle version suffers from poor rendering of the images, so I would go for the PDF version of the book.

Nice, concise treatment of the rather complicated topic of one aspect of getting the most from your 3D printer. I wish there was more of the same, but what is there is quite valuable. Great little book for anyone who is doing 3D printing.

Not the easiest book to understand, could use some more detailed explanations, but it is very valuable as a resource and has helped me. I believe that as I become more experienced, it will become even more valuable. Recommended,,

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