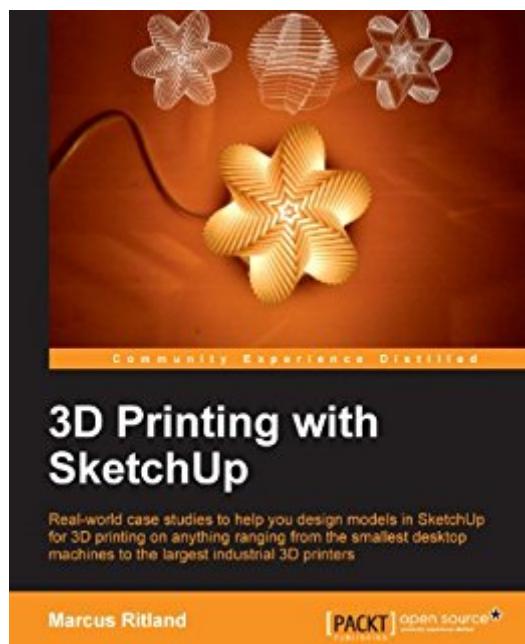


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# 3D Printing With SketchUp



## Synopsis

Realworld case studies to help you design models in SketchUp for 3D printing on anything ranging from the smallest desktop machines to the largest industrial 3D printersAbout This BookLearn how to design beautiful architectural models that will print on any 3D printerPacked with clearly illustrated examples to show you just how to design for 3D printingDiscover the essential extensions and companion programs for 3D printing your modelsWho This Book Is ForIf you are familiar with SketchUp and want to print the models you've designed, then this book is ideal for you. You don't need any experience in 3D printing; however, SketchUp beginners will require a companion book or video training series to teach them the basic SketchUp skills.What You Will LearnUnderstand how 3D printing works, and why you may need to design your model differently for different printing processesDiscover tips to make the modelling process easier, extensions to help you work faster, and how to make any model printableFind online models and expedite the modelling process by working from an existing modelAdapt architectural models built for rendering into full-color 3D printable modelsImport terrain data from Google Earth to SketchUp and work with terrain data to make it printableIn DetailAs 3D printing is becoming more accessible, it is important for designers and architects to know how to utilize the technology. SketchUp is a popular 3D modelling tool and is among the easiest programs to work with as a beginner. Whether printing on your desktop, or outsourcing to a commercial 3D print service, this is a skill you'll want in your portfolio.Starting with an overview of 3D printing technologies, you will learn how to design SketchUp models for 3D printing, set up a template for 3D printing, explore the specific requirements for a 3D printable model, and look at the essential SketchUp extensions for 3D printing. You will start by printing a simple 3D model, progress to importing images that can be used to make 3D models, and move on to tweaking the model for specific 3D printers. This book delves into the most important concepts for designing 3D printable models, from wall thickness and modelling solids, to using available models and adapting them to your needs. You will also learn where to access, and more importantly, how to adapt existing 3D models available online for your own use. Finally, this book will show how it's possible to use Google Earth terrain and modify existing architectural SketchUp models before printing.

## Book Information

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## **Customer Reviews**

The book is oriented to people with basic familiarity with SketchUp, but fairly new to the 3D Printing process. So the first chapter is not about SketchUp, but about the process. This is good, as even though the very basics of 3D Printing are easy to understand, applying them properly is quite tricky. The author links to his personal website for some instructional videos of the 3D printing process, which is recommended if you are new to this concept. Describing the process is one thing, but actually seeing a machine doing its work is totally different. From the very first chapter, he hints at the complexities involved with 3D printing, by mentioning the need for printing a "support structure". Although not all technologies have equal requirements, the fact is that you are working in layers and in most cases, these layers of materials rest on the underlying layer. Especially in architecture, this is tricky, since a floor or roof is only supported at its edges, so it would need quite a lot of support material, which, depending again on the process, is costly. Chapter 4 (about model resolution) is one of the most important chapters, discussing Wall thicknesses. It has a few shorter examples, talking about circle segments, the Follow Me tool and some tools from extensions. All in all, this chapter could easily be double the size, when going more into detail about the actual process. And then it might leave some more room for additional pictures. The author deliberately uses SketchUp MAKE and so has to do some additional work which the Solid Tools in the Pro version would solve more directly. But it does help you better understand the process of working with solids.

I've been a fan of SketchUp for some years but like any application it always had its downsides, not the least of which is the time it takes to get good at using it. It has a growing set of add-ons and extensions that increase its functionality, but again finding and learning to use them all takes time. SketchUp is not a replacement for serious CAD environments handling complex or multiple parts in an assembly, but where your needs are moderate (resolution and part count) then it can be an easy to use tool. This book definitely comes into its own by giving a leg up on using SketchUp to produce .stl files which are pretty much the universal model used for both additive and subtractive manufacturing. I don't do any 3D printing at all yet, but do run a small mill (subtractive machining) and this book provides quite some gems for doing simple projects on a CNC. If you are used to the terminology of 3D printing and the model if .stl if slicer if print paradigm then this book will be an easy read. The concepts are very well introduced and links to the required extensions and documentation provided. The author starts the real work in Chapt2 by having you install Sketchup and set it up for easy project use. It's a follow the bouncing ball exercise, but should get even the newest hobbyist up and running with a fully functional project template and able to save .stl files. Chapt3 has you import sketches and digitize a model of the drawing and save the project. Simple but builds you confidence using the product. His focus is ever on 3D printing, but everything said applies easily to CNC work too (except for overhangs). Chapt4, profiles, circular resolution, Bezier splines and thin walls without any heartache. Excellent coverage in a simple manner.

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