Mug Carving 101

Stock Selection

For this project you'll need a dry short spindle blank.

Make sure to use non-toxic species for foodware...even if you're just making a mug for decorative purposes, odds are someone's eventually going to end up using it to drink from. "The Wood Database" (wood-database.com) has descriptions for just about every wood available and includes known allergies/toxicity for all species they have listed.

Blank should be 3"x3" to 4.5"x4.5" and 1.5" to 2" longer than height/width. Grain direction should run along the length (longest dimension). 3"x3"x5" and 4"x4"x6" blanks are good sizes to work from.

Got Wood? LLC (turningblanks.net) is a good source for 3" and 4" spindle blanks. They carry a variety of domestic woods both green and kiln dried. Kiln dried is a little more expensive, but it's ready to turn and the shipping costs are much less (they charge shipping by the pound).

Initial Turning

The blank will be turned off center, so you'll need a good chuck and a solid lathe.

Remove one jaw from a four jaw chuck and mount the blank with the grain running perpendicular to the lathe. The third jaw is for spacing purposes - after you've initially mounted the blank you may want to remove that then move the blank out 1/8"-1/4" to allow a little more room for the wall of the mug opposite the handle.

Make sure your blank is securely mounted in the chuck. You'll be removing the material where the jaws bite in, so don't worry about damaging the wood - tighten the jaws as tight as you can.

While standing out of the way of the blank start the lathe at the slowest speed possible and increase until the lathe begins to vibrate. Decrease the speed until the lathe returns to turning smoothly.

Carefully turn a tenon on the bottom of the mug. Change the chuch jaws to an appropriate size (all four jaws now)and re-chuck the blank using the tenon you just turned.

For the next step you'll basically turn another tenon on the top of the mug. This won't be used for mounting the blank - you just need to turn around the edges to see where the finished diameter will be.

Mount a Jacobs chuck with a forstner bit in the tail stock and drill the cavity of the mug. Use a drill bit 1" - 1.5" smaller than the width of your blank. Drill down to about .75" from the bottom of the blank.

Rough Shaping on the Band Saw

Remove your blank from the lathe. Mark a line down the side about .5" to .75" from the edge of the hole you drilled and sketch the profile shape for the handle. Lay your blank on the side and cut the profile of the handle on a band saw. A rough 3/16" or 1/4" blade works fine for most shapes. Saw marks aren't a concern - these will be removed when you do the final shaping.

Stand the blank upright (hole facing up) and mark the width of the handle. About 1" to 1.25" is a good width. Sketch the curve between the handle and the "tenon" you turned on the top of the mug then cut the rough shape of the mug on the band saw. Leave part of the sides flat so you have a surface to lay on when drilling the handle.

Rough Drill Handle

Lay the blank flat on one side and secure with a drill vise or hand screw clamp. Stack some scrap boards under the handle for additional support. Drill a series of holes along the handle where you want the finger hole(s) to be. Each handle is going to be a little different, but you want to use a drill big enough for your fingers, but small enough to leave about .25" - .5" for the outside width of the handle.

Final Turning

Note: the final turning *could* be done at the same time as the initial turning, but I prefer to band saw as much excess weight off of the blank before finishing the inside.

Remember you still have the handle sticking out so keep clear of it while turning, sanding and finishing.

Remount the bottom of the blank on the lathe and turn the inside of the mug to the final shape. Keep in mind that you'll be shaping the outside later and leave enough thickness on the outside. Unlike most hollow turnings the outside is going to be irregular so you're not aiming for a consistent wall thickness. Turn the inside so it's rounded somewhat to match the final shape, but you're looking more for a general smooth curve than any kind of exact shape or diameter.

Finish sand the inside to 220.

Inside Finishing - Oil

If you're going to use an oil finish it's easier to do the inside while it's still on the lathe. My personal preference is walnut oil, but any butcher block type oil should work fine. Coat the inside liberally with oil then turn the lathe on at medium speed and sand with 180. With the lathe still running wipe the inside with a paper towel (you may want to increase the lathe speed a little when wiping to generate some heat).

Repeat with finer grits until you're satisfied with the smoothness - I generally go to 320 or 400. I'd recommend letting the oil sit 10 minutes or so between sandings if you have the time and patience.

Inside Finishing - Epoxy

If you want to finish the inside with epoxy, you'll need to do that after final sanding the inside and before shaping the outside. While just about all epoxies (and other finishes) are food safe after curing, I prefer to err on the side of caution and use an FDA approved epoxy suitable for contact with food.

You'll need to mount a low speed motor horizontally and devise some means of attaching your blank. I'd recommend drilling a bolt that matches the threads on your chuck and mounting that to the shaft on the motor, but attaching some sort of plate to the shaft and using good 2 sided tape to mount the blank *should* work.

Mount your blank on the motor and make sure the top is angled slightly upwards so the epoxy doesn't run out. Mix your food safe epoxy and brush on the inside with the motor running. Get a good coat on and brush out any excess to prevent pooling. Ideally you want the motor running as slow as possible. 10 - 25 RPM is best, but up to 100 RPM or so will work.

Once the epoxy is applied you may want to carefully apply heat with a torch to remove bubbles.

Drying times differ depending on the epoxy you're using, but generally you'll need to let the epoxy cure 8 hours with the motor running. Final curing can take from 24-72 hours.

If needed you can apply a second coat after the first has initially set.

Shaping

Once you're done finishing the inside it's time to shape the outside. I'm not a skilled carver by any means, but this method works well for rough shaping a rustic mug.

Using a long neck mini angle grinder with a carving disc shape the outside of the mug. Proxxon and King Arthur Tools both make good angle grinders, but I'd recommend the King Arthur if you need to buy one - there are a number of packages available on Amazon which come with all the accessories you need.

For finishing the handle you'll need to switch to something smaller. I use a dremel with a flex shaft, but any detail carving tool you have will work. If you've got a good Fordham or something similar, that's even better. Shape the handle with a carving bit. Dremel's carving bits are readily available and work OK, but I'd recommend a set of carving burrs - Treeline sells a good set with pretty much everything you'll ever need. A flex shaft isn't absolutely necessary, but it does make things a lot easier.

Once you've got your mug shaped, switch to a flap sander on the mini grinder and start sanding. Again, for the handle you'll need to switch to the Dremel with a sanding drum and/or flap sander.

Finish sanding with a detail sander then hand sand to 220.

Outside Finishing

For an oil finish, liberally wipe down the outside with oil then wet sand with 180. Wipe down after sanding and let sit 5-10 minutes then repeat the process with the next grit. Keep repeating until you've sanded to the final grit you're going to - I'd suggest going to at least 320.

After the oil has fully cured (around 72 hours), you may want to go over everything with a 3M pad then buff with a soft cloth and/or buff with beeswax.