Bowl-Turning

Research Results

Text: *Wood Technology and Processes*; Chapter 30 – Lathe, Feirer
“Parts of the Lathe: The wood lathe consists of a bed, a headstock, a tailstock, and a tool rest.”- Feirer & Feirer, pg.380
This chapter covers basic Lathe set-up and functionality. The chapter also covers turning tools such as gouges, skews, roundnoses, spearpoints, and parting tools.

Text: *Wood Technology and Processes*; Chapter 1 – Woodworking Industry, Feirer
This chapter discusses the commercial importance and usefulness of wood. The chapter also covers the advancement of computer technology in the woodworking industry.

This chapter informs and instructs on the seriousness of safety. The chapter also covers common workshop hazards such as fire, electricity, and hazardous materials; stating that safety is an attitude and should be taken seriously.

Text: *Wood Technology and Processes*; Chapter 3 – Designing & Planning, Feirer
“Plan your work; work your plan”- Feirer & Feirer, pg.96
This chapter provides useful information regarding the designing, outlining, and planning of a project. The chapter also covers proper drawings and the use of scaled drawing.

Text: *Wood Technology and Processes*; Chapter 4 – Measuring & Cutting, Feirer
This chapter stresses the importance of accurate measuring. The chapter also covers the use of angles, types of cuts, and technological advances in measuring accuracy.

Text: *Fine Woodworking Magazine*; Bowl-Turning Basics by Richard Raffan
This article gives several safety tips and how-to’s on bowl-turning. Such tips include roughing out profiles and using firm grips and light touches. Several diagrams illustrate taking small cuts to achieve the desired shape and form of a bowl.

Text: OneWay Manufacturing; Owner’s Manual, 1640 Lathe
The Owner’s Manual for the wood lathe gives detailed information on operation procedures as well as proper maintenance, care, and safety. The manual also gives troubleshooting guides and contact information.

Text: OneWay Manufacturing; 2006 Wood Turners Catalogue
The Wood Turners Catalogue covers detailed information regarding wood lathe parts and instructions. This catalogue provides the “how” and “why” to equipment parts, assemblies, and tools, as well as information on the newest technologies available for wood turning.

Web: heirloombowls.com; The Process
This website contains all of the processes one goes through for making a custom bowl for retail customers.
Goals
1. Learning and exercising the creative process to design different sizes and shapes of bowls.
2. Utilize precise measuring to create accurate cuts for thickness, width, and length, for the reduction of wasted materials.
3. Utilize advanced mathematics to create accurate circumferences, proportional depths, and precision angles for square stock to create circular shapes.
5. Designing and lay-out of materials for laminating to create different visual effects.
6. Learning and exercising the proper use and maintenance of turning tools and equipment.
7. Learning and exercising proper tool care and sharpening.

Purpose
To learn and utilize design techniques, precision measuring, algebra and geometry, proper material layout, wood lamination process, machine maintenance, and tool care for the purpose of industrial use and career advancement.

Function
To achieve proper knowledge of the correct process to successfully turn bowls and to successfully complete turned bowls.

Plans, Drawings, Sketches, Design
See attached documents.

Tools
- Wood Lathe – Mechanical device used for turning wood.
- Gouge – Curved blade with a rounded cutting edge that is beveled on the convex side.
- Skew – Flat blade with cutting edge that is ground at an angle.
- Roundnose – Flat blade with rounded end that is beveled on one side.
- Spearpoint – Flat blade with sharp V-point end that is beveled on one side.
- Parting Tool – Flat blade with two beveled sides that are angled toward each other to form a narrow cutting edge at the end of the blade.
- Sandpaper – Garnet abrasive that cuts tiny grooves to give wood a smooth texture.
- Clamps – Applies uniform pressure to work pieces for adhesion.
- Wood Glue – Adhesive to attach two wooden surfaces together.

Materials
Plywood: To be used as scrap stock for the attachment of the lathe faceplate.
Lumber: Solid wood to be used for the work piece.
SAFETY
EYE PROTECTION IS REQUIRED.
KEEP SLEEVES ROLLED UP AND AWAY FROM THE LATHE AT ALL TIMES.
SECURE ALL LOOSE OBJECTS ON YOUR PERSON AT ALL TIMES.
SECURE ALL MOVABLE TOOL PIECES BEFORE STARTING THE LATHE.
READ AND SIGN ALL SAFETY INFORMATION IN SAFETY PORTFOLIOS.
FOLLOW ALL ADDITIONAL SAFETY INSTRUCTIONS PROVIDED BY THE MANUFACTURER AND THE INSTRUCTOR.

Method/Timeline
Week-1 Course introduction and shop safety.
Week-2 Research and development of project.
Week-3 Getting started: Measuring and cutting solid wood blanks, measuring and cutting plywood scrap stock, gluing scrap stock to wood blanks.
Week-4 Turning on lathe: Attaching work piece to the lathe. Truing the work piece to proper dimension. Shaping and sanding outer bowl. Shaping and sanding inner bowl. Applying finish. Lay-out and glue-up of next work piece.
Week-5 Turning on lathe: Attaching work piece to the lathe. Truing the work piece to proper dimension. Shaping and sanding outer bowl. Shaping and sanding inner bowl. Applying finish. Lay-out and glue-up of next work piece.
Week-7 Turning on lathe: Attaching work piece to the lathe. Truing the work piece to proper dimension. Shaping and sanding outer bowl. Shaping and sanding inner bowl. Applying finish. Lay-out and glue-up of next work piece.
Week-8 Finishing up, Turning on lathe: Attaching work piece to the lathe. Truing the work piece to proper dimension. Shaping and sanding outer bowl. Shaping and sanding inner bowl. Applying finish.

Directions
These directions are intended for the use of the wood lathe after all designing, planning, lay-out and glue-up is complete:
• Select the desired work piece.
• Attach lathe faceplate to scrap stock with screw fasteners.
• Mount faceplate with work piece onto the lathe.
• Set up tool rest as so it is closest to the work piece without touching. (For more information on how to set up the tool rest or other lathe parts, please read all text material provided in the Research Results section of this work packet.)
• Spin work piece by hand to ensure proper clearance from the tool rest.
• Turn on power to lathe. (Please read all safety material and operational guidelines before operating the lathe.)
• Begin truing work piece by evenly remove materials from the outermost part of the work piece until it is the proper size and diameter. (Do not allow too much distance between the tool rest and the work piece. If distance does occur, turn off the lathe and adjust the tool rest to a closer position.)

• Start shaping the outer bowl by removing portions of the work piece until the desired outer shape is achieved. (Do not allow too much distance between the tool rest and the work piece. If distance does occur, turn off the lathe and adjust the tool rest to a closer position.)

• Once the outer bowl has been shaped, remove the work piece from the lathe and drill a hole in the center of the work piece to the max depth desired for the inner bowl. (This step helps keep the inside dimensions more exact and prevents cutting through the work piece.)

• Re-attach the work piece to the lathe. (As long as the work piece was moved carefully and not damaged, it should stay true on the lathe.)

• Set up tool rest to begin shaping the inner bowl. (Check work piece for proper clearance.)

• Turn on power to lathe.

• Begin shaping the inner bowl by removing small amounts of the work piece until the desired inner bowl shape is achieved.

• Sand both the inner and outer areas of the bowl to achieve a smooth surface.

• Apply finish as desired.
The Candy Bowl
The Roman Bowl
The Rice Bowl
The Lipped Bowl