Teachers Curriculum: Multi-Axis Lesson Plan for an Oval Tool Handle

Course # 95528001 Session One

Session Objectives: Enable students to turn an oval tool handle using multiple axes, including instructions on layout and finishing.

Materials List: Dry wood spindle 10 inches long and 2 inches in diameter. Tools used is a spindle roughing gouge and a parting tool. Student may use a large fingernail grind bowl or spindle gouge.

Presentation time line:

Introductions and safety procedures by teacher :	45 min
Discussion of layout by teacher:	20 min
Turning demonstration of project by teacher:	20 min
Preparation and marking by students:	20 min
Turning the spindle to completion by students:	45 min
Q & A and critique of the project, all:	15 min
Clean-up, all:	15 min
Total:	**180 min**

Incomplete projects: As this is a rather simple process the student can either finish at home (preferred) or he can have one of the TA's help him with any difficult cuts.

Teachers Curriculum: Candle Holder Multi-axis Lesson Plan

Course # 95528001 Session Two

Session Objectives: Enable students to turn a candle holder using multiple axes, including instructions on layout and drilling the tapered mortise to accept the standard tapered candle.

Materials List: Dry wood spindle 12 inches long and 2 inches in diameter. Tools used are a spindle roughing gouge, bowl gouge or large spindle gouge, and a parting tool.

Presentation time line:

Introductions and safety procedures by teacher :	15 min
Discussion of layout by teacher:	15 min
Turning demonstration of project by teacher to the first feature:	20 min
Preparation and marking by students:	15 min
Turning to the first feature by students:	45 min
Q & A and evaluation of what we did so far:	15 min
Turning the additional three features by students:	45 min + *
Clean-up, all (to be continued next class):	15 min
Drilling the tapered mortise to accept the candle by teacher:	20 min
Q & A and critique of the project, all:	15 min
Total:	**220 min**

* Incomplete projects: As this is a rather long project and will take more than one class period, students that fall way behind can have one of the TA's help him with any difficult cuts and bring the project to completion. Note: the session 3 project will take 140 minutes to make up for this overage.

Teachers Curriculum: Twisted Spindle Goblet Lesson Plan for the Spindle

Course # 95528001 Session Three

Session Objectives: Enable students to turn a twisted spindle using multiple axes for inclusion in a goblet (that will be completed in session 4), including instructions on layout and milling a 1/4inch tenon on each end of the twisted spindle.

Materials List: Dry wood spindle 8 inches long and 2 inches wide. Tools used are a spindle roughing gouge, bowl gouge or large spindle gouge, and a parting tool.

Presentation time line:

Introductions and safety procedures by teacher :	10 min
Discussion of layout by teacher:	15 min
Turning demonstration of project by teacher:	15 min
Preparation and marking by students:	10 min
Turning the twisted spindle without the tenon by students:	40 min
Q & A and evaluation of what we did so far, all:	10 min
Turning the tenons needed and parting the project by students:	15 min
Q & A and critique of the project, all:	10 min
Cleanup, all:	15 min
Total:	**140 min**

Incomplete projects: As this is a relatively short project, students that fall way behind can have one of the TA's help him with any difficult cuts and bring the project to completion. Note: the session 4 project is the completion of the goblet and the student should be able to complete the entire project.

Teachers Curriculum: Twisted Spindle Goblet Cup and Base Lesson Plan

Course # 95528001 Session Four

Session Objectives: Enable students to complete the twisted spindle goblet by turning the cup and base of the goblet then assembly of the cup, bas and spindle to complete the goblet. Student will also receive instructions on hollowing out end grain using a spindle gouge and round nose scraper.

Materials List: Dry wood spindle 6 inches long and 3 1/4 inches wide. Tools used are a spindle roughing gouge, spindle gouge, and a parting tool.

Presentation time line:

Introductions and safety procedures by teacher :	10 min
Discussion of layout by teacher:	15 min
Turning demonstration of project by teacher:	30 min
Preparation and marking by students:	10 min
Turning and parting the goblet by students:	45 min
Q & A and evaluation of what we did so far, all:	10 min
Turning and parting the base of the goblet by students:	15 min
Assemble of the cup, base and spindle by students:	20 min
Q & A and critique of the project, all:	10 min
Cleanup, all:	15 min
Total:	**180 min**

Incomplete projects: As this is a the last project, students that fall way behind can have one of the TA's help him with any difficult cuts and bring the project to completion.