Woods Manufacturing Process 1

Course Description:

The curriculum for this course is developed from the Wisconsin Standards for Technology and Engineering. This introductory elective course is a 1 Trimester Course in which students will first learn how to use the woods manufacturing machines to machine and square up a piece of raw material (wood). This is a project based course in which 2 seperate projects are produced. The first project is a small storage (Jewelry) box, the second is a large breadbox. The breadbox parts are mass produced. There is a course fee charge for the cost of the materials being consumed for the projects. The information in this course overview outlines what students should understand and be able to do by the end of the trimester.

Mastery Standards:

Knowledge of equipment and safety procedures are essential to responsible use of equipment and tools in the woods manufacturing industry . (AC1.c, AC1.d, AC1.e, AC1.f, MNF1.a)

Understanding and knowledge of tools and materials is requisite for analyzing sound choices in methods and materials in the woods manufacturing industry. (BB1.b)

Quality design, engineering, and construction require accurate knowledge and application of measuring systems. (AC1.a, AC1.b)

Experience applying design theory allows for stronger analysis of plans and designs before investment of resources in final production. (ENG1.a, ENG2.a, ENG2.b, ENG3.a, ENG3.b-ENG4.a)

Executing and receiving evaluations and feedback on projects is vital to learning and improving skills. (ENG4.c, ENG5.a)

Specific tasks require experience and knowledge to correctly identify, select, and safely use appropriate tools, machines, products, systems, and techniques. (MNF1.a, MNF1.b, MNF1.c, MNF1.d, MNF1.e, MNF1.f, MNF1.g, MNF1.h)

Unit	Description of Unit and Learning Targets
Unit Title: Safety Essential Questions: ● How do you incorporate safety knowledge and practice into the Woods Manufacturing Industry?	Students learn and review safety procedures before working with tools and machines. Learning Targets: ● I can demonstrate and use the hand and power tools of the trade properly and safely. ● I can demonstrate the safety procedures and practices in various work environment settings pertaining to the Woods Manufacturing Industry. ● I can identify safety and health protections and procedures that are critical to worker well being.
Unit Title: Lumbering and Woods Products Essential Questions: ● What are some raw materials for Wood Manufacturing?	Students learn how a tree becomes and board and other wood manufacturing products Learning Targets: ● I know how a tree grows and how this growth affects the characteristics of wood products. ● I know the difference between hardwood and softwood trees.

	● I know how plywood and other panel stock is made. ● I know how lumber is dried.
Unit Title: Careers in Woods Manufacturing Essential Questions: ● What career opportunities are there in woods manufacturing?	Students learn what career opportunities are in the woods manufacturing industry. Learning Targets: ● I know that there are many careers associated with the woods manufacturing industry. ● Woods Manufacturing is not just making projects.
Unit Title: Design and Planning Essential Questions: ● How do you design a project to meet specific requirements?	Students learn that a design and a Plan Of Procedure (POP) are needed to manufacture a wood product.. Learning Targets: ● I know what makes a good designed project. ● I know what a working drawing is. ● I understand that a Plan Of Procedure (POP) is a very detailed step by step plan for manufacturing a wood product.
Unit Title: Hand Tools and Measuring Essential Questions: ● How do you choose and use the correct hand tools? ● How to measure using a ruler/tape measure.	Students learn the identity and proper use of hand tools and also how to use a ruler or tape measure. Learning Targets: ● I know the identity and use of 90% of the basic hand tools used.. ● I know how to measure using a steel rule or a tape measure.
Unit Title: Machine Safety and Operation; Radial Arm Saw Essential Questions: ● How do I safely operate this machine?	Students learn and apply their skills working with the radial arm saw. Learning Targets: ● I know the parts of the radial arm saw. ● I know the safe operation the radial arm saw. ● I know how to correctly crosscut on the radial arm saw.
Unit Title: Machine Safety and Operation; Jointer Essential Questions: How do I safely operate this machine?	Students learn and apply their skills working with the jointer Learning Targets: ● I know the parts of the jointer. ● I know the safe operation of the jointer. ● I know how to correctly face and edge joint on the jointer.
Unit Title: Machine Safety and Operation; Planer Essential Questions: ● How do I safely operate this machine?Planer/Surfacer	Students learn and apply their skills working with the planer/surfacer. Learning Targets: ● I know the parts of the planer/surfacer. ● I know the safe operation of the planer/surfacer. ● I know how to correctly plane a board to the finished thickness on the planer/surfacer.
Unit Title: Machine Safety and Operation; Table Saw Essential Questions: ● How do I safely operate this machine?	Students learn and apply their skills working with the Table saw. Learning Targets: ● I know the parts of the table saw. ● I know the safe operation the table saw. ● I know how to correctly crosscut on the table saw. ● I know how to correctly rip on the table saw.
Unit Title: Machine Safety and Operation;	Students learn and apply their skills working with the Bandsaw.

Bandsaw Essential Questions: ● How do I safely operate this machine?	 Learning Targets: ● I know the parts of the Bandsaw. ● I know the safe operation the Bandsaw.
Unit Title: Machine Safety and Operation, Router Essential Questions: ● How do I safely operate this machine?	Students learn and apply their skills working with the Router. Learning Targets: ● I know the parts of the Router. ● I know the safe operation of the router. ● I know how to remove and install a bit in the router.
Unit Title: Individual/Class Project Production Essential Questions: ● How do you use the woods manufacturing machine tools to take raw material to finished state?	Students manufacture an individual project (Jewelry box) while learning the machines. Learning Targets: ● I can safely and correctly use all the machines to manufacture the jewelry box.
Unit Title: Sanding and Finishing Procedures Essential Questions: ● How do you finish and protect your wood products?	Students learn how to sand, stain, seal and polish wood products. Learning Targets: ● I can sand a smooth finish on wood products. ● I can stain wood products to change its appearance. ● I can spray and seal wood products. ● I can polish wood products.
Unit Title: Mass Production Essential Questions: ● What is the purpose of Mass Production?	Students will work together to mass produce a predetermined project (Breadbox). Learning Targets: ● I can work together with my team to produce the parts for the product. ● I can perform the task that I am assigned in the Mass Production processes. ● I understand what mass production is. ● I understand what quality control is. ● I understand tolerances.