

BAA ADVANCED JOINERY FRAMEWORK 12

DISTRICT NAME: Coquitlam

DISTRICT NUMBER: SD#43

DEVELOPED BY: Dave Jones

DATE DEVELOPED: April 20, 2006

SCHOOL NAME: Dr. Charles Best

PRINCIPAL'S NAME: Brian Fichter

BOARD/AUTHORITY APPROVAL DATE: April 20, 2006

BOARD/AUTHORITY SIGNATURE: _____

COURSE NAME: Advanced Joinery

GRADE LEVEL OF COURSE: 12

NUMBER OF COURSE CREDITS: 4

NUMBER OF HOURS OF INSTRUCTION: 120 hrs (year)

PREREQUISITE(S): Wood 9 or Carpentry and Joinery 11
In the process of taking or have received credit for any Math course at the grade 11 level

SPECIAL TRAINING, FACILITIES OR EQUIPMENT REQUIRED:

Joinery Instructor with Red Seal Ticket or teacher who has taken the Joinery ELTT program at BCIT, Woodshop,

COURSE SYNOPSIS::

Advanced Joinery provides students with basic theory and related information along with hands-on shop practice in the field of joinery. It enables students to become competent in basic interior woodworking tasks. The course covers a broad range of joinery topics that will provide students with a solid foundation of skills related to the joinery profession. The course is designed to integrate all aspects of the profession in a logical sequence. From the introduction of hand tools and the progression to power tools, safety is a common thread in the course that is designed to meet industry standards.

RATIONALE:

This course will provide students with the first 12 weeks of the ELTT (Entry Level Trades Training) Joinery Program at BCIT. It is intended for students interested in pursuing a career in the joinery profession, improving their skills or seeking employment. Students who take this course have the option of continuing on to BCIT for further training or entering the job market.

ORGANIZATIONAL STRUCTURE

Unit	Title	Time
1	Use Safe Work Practices	10
2	Solve Mathematical Problems	20
3	Apply Layout and Technique	75
4	Care and Use of Hand Tools	80
5	Identify Woodworking Joints	10
6	Describe Portable Power Tools	60
7	Use Woodworking Machines	80
8	Identify Materials	10
9	Use Machining/Assembly Techniques	10
10	Apply a Finish	5
Total Hours		360

UNIT 1: Use of Safe Work Practices

10 Hours

Students will learn about various safety concerns related to the joinery profession. This unit will provide students with a foundation of the various safety rules, regulations and concerns relevant to a school and industrial setting.

Curriculum Organizers - Safe Work Habits

It is expected that students will be able to:

- Describe safe material handling procedure and equipment
- Describe safe lifting procedures and the effect of noise on hearing
- Demonstrate an understanding of WCB Regulations and accident compensation
- Demonstrate an understanding of Workplace Hazardous Materials Information Systems
- Identify W.H.M.I.S. labels
- Describe ways of preventing and controlling fire

UNIT 2: Solve Mathematical Problems

20 Hours

In this unit students will learn how to apply various mathematical principles to problems related to Joinery.

Curriculum Organizers – Understanding of Joinery Fundamentals

It is expected that students will be able to:

- Solve problems involving whole numbers, fractions and decimal fractions
- Convert metric and imperial measurements
- Solve problems involving ratio and percent
- Interpret simple graphs
- Solve problems involving simple formulas
- Compute problems involving perimeters, areas and volumes
- Solve problems involving angles, triangles and geometric conversions
- Calculate lumber quantities and cost
- Calculate quantities and costs of sheet goods

UNIT 3: Apply Layout and Techniques

75 Hours

Unit 3 introduces students to the process where joiners read blue prints and visualize the item to be built. Students will learn the skills of how to draft a project and then actually create several drawings to illustrate their comprehension.

Curriculum Organizers – Understanding of Joinery Fundamentals

It is expected that students will be able to:

- Identify standard lines, letters, and scales used on drawings
- Identify orthographic drawings, cabinet oblique, isometric and pictorial drawings
- Identify standard metric dimensioning practices
- Interpret residential blue prints
- Identify symbols and abbreviations
- Read and interpret specifications
- Describe the types and uses of shop drawings
- Describe procedures for producing shop drawings
- Describe the use of measuring, layout and testing tools

Curriculum Organizers – Application of Joinery Fundamentals

It is expected that students will be able to:

- Create a three view sketch of a simple object to scale
- Construct orthographic drawings, cabinet oblique, isometric and pictorial drawings
- Locate information in the British Columbia building code
- Describe the types and uses of shop drawings
- Apply layout techniques

UNIT 4: Care and Use of Hand Tools

80 Hours

This unit will introduce students to the wide variety of hand tools that are used in the joinery trade. It will explore the different applications and maintenance of hand tools and how they can be used effectively. Special emphasis will be placed on the sharpening of cutting tools.

Curriculum Organizers – Understanding of Joinery Fundamentals

It is expected that students will be able to:

- Describe the use of measuring, layout and testing tools
- Describe the parts of a plane
- List the different types of chisels
- List the different uses of boring and fastening tools
- List the various steps involved in sharpening a chisel and plane

Curriculum Organizers – Application of Joinery Fundamentals

It is expected that students will be able to:

- Demonstrate the proper use of sawing tools
- Demonstrate the proper use of planes, chisels, hand clamps, files and scrapers
- Demonstrate how to sharpen a chisel and plane
- Construct a bench hook using hand tools
- Construct a trinket box using hand-cut dovetail joints

Curriculum Organizers – Safe Work Habits

It is expected that students will be able to:

- Demonstrate how to safely use hand tools

UNIT 5: Identify Woodworking Joints

10 Hours

Unit 5 introduces students to the various joints used in the joinery trade. Through a variety of practicals and projects students learn about the various applications of different joints and analyze their strengths and weaknesses.

Curriculum Organizers – Understanding of Joinery Fundamentals

It is expected that students will be able to:

- Identify lap, dado, rabbet, butt, and miter joints
- Identify mortise and tenon and dowel joints
- Identify scarf, finger, dovetail and box joints
- Identify tongue and groove and biscuit joints

Curriculum Organizers – Application of Joinery Fundamentals

It is expected that students will be able to:

- Construct a miter joint, dovetail, and biscuit joint

Curriculum Organizers – Safe Work Habits

It is expected that students will be able to:

- Use proper safety procedure while constructing different joints

UNIT 6: Describe Portable Power Tools

60 Hours

This unit introduces students to a variety of power tools that a student would find in a joinery shop. Maintenance, safety, and appropriate use of power tools are discussed in this unit. Students will acquire essential skills during this unit and achieve a much greater understanding of the benefits and limitations of each power tool.

Curriculum Organizers – Understanding of Joinery Fundamentals

It is expected that students will be able to:

- Describe electric and air power sources
- Describe the use of portable power saws
- Describe the use of portable drills
- Describe the use of portable planes and sanders
- Describe the use of a portable and table mounted router
- Describe the use of a portable fastening device
- Describe the use of a portable biscuit jointer
- Describe the basic maintenance of portable power tools

Curriculum Organizers – Application of Joinery Fundamentals

It is expected that students will be able to:

- Demonstrate the correct use of a portable saw and drill
- Demonstrate the use of various sanders
- Demonstrate the use of a portable and table mounted router
- Demonstrate the use of a portable biscuit jointer

Curriculum Organizers – Safe Work Habits

It is expected that students will be able to:

- Demonstrate safe handling procedures and application of all portable power tools

UNIT 7: Use Woodworking Machines

80 Hours

During this unit the students will expand their skills by constructing a project that combines a variety of woodworking machines and portable power tools. They will be given a set of blue prints and will be required to build the project accordingly. Emphasis will be placed on machine safety.

Curriculum Organizers – Understanding of Joinery Fundamentals

It is expected that students will be able to:

- Identify the parts of the drill press and their functions
- Identify the parts of the sliding compound mitre saw and their functions
- Identify the parts of the table saw and their functions
- Identify the different types of saw blades, their parts and functions
- Identify the parts of the band saw and their functions
- Describe the blades used on the band saw
- Identify the parts of the jointer and their functions
- Identify the parts of the thickness planer and their functions
- Identify the parts of the and their functions

Curriculum Organizers – Application of Joinery Fundamentals

It is expected that students will be able to:

- Describe the correct use of the drill press
- Demonstrate the correct use of the drill press
- Describe the correct use of the sliding compound mitre saw
- Demonstrate the correct use of the sliding compound mitre saw
- Describe the correct use of the table saw
- Demonstrate the correct use of the table saw
- Describe the correct use of the band saw
- Demonstrate the correct use of the band saw
- Describe the correct use of the jointer
- Demonstrate the correct use of the jointer
- Describe the correct use of the thickness planer
- Demonstrate the correct use of the thickness planer
- Demonstrate the correct use of sanders
- Construct a tool box

Curriculum Organizers – Safe Work Habits

It is expected that students will be able to:

- Demonstrate safe handling procedures and application of all woodworking machines

UNIT 8: Identify Materials

10 Hours

Students will learn about the basic structure and properties of wood in this unit. They will also identify different types of plywood and explore their uses. The uses of composition board will also be discussed in this unit and how to properly store and handle the different types of material.

Curriculum Organizers – Understanding of Joinery Fundamentals

It is expected that students will be able to:

- Identify structure of solid wood
- Describe the properties of solid wood
- Explain the difference between hardwood and softwood
- Identify types and grades of plywood
- Describe the methods of matching face veneers
- Describe the handling and storage of plywood

Curriculum Organizers – Application of Joinery Fundamentals

It is expected that students will be able to:

Curriculum Organizers – Safe Work Habits

It is expected that students will be able to:

UNIT 9: Use Machining/Assembly Techniques

10 Hours

Students will become familiar with the proper procedure for breaking out solid wood and sheet goods, which is an essential skill. They will learn to maximize their wood resources to reduce wood wastage.

Curriculum Organizers – Understanding of Joinery Fundamentals

It is expected that students will be able to:

- Describe standard lumber sizes
- Describe solid wood breakout
- Describe sheet good breakout
- Describe detail machining

Curriculum Organizers – Application of Joinery Fundamentals

It is expected that students will be able to:

- Demonstrate solid wood breakout

Curriculum Organizers – Safe Work Habits

It is expected that students will be able to:

- Describe shop safety

UNIT 10: Apply A Finish

5 Hours

In this unit students will learn about the different types of finishes. They will also learn about the proper sanding and surface preparation procedures to follow prior to application.

Curriculum Organizers – Understanding of Joinery Fundamentals

It is expected that students will be able to:

- Identify coated abrasives
- Describe hand-sanding aids and techniques
- Describe machines-sanding techniques
- Describe prefinishing repairs and final sanding
- Describe the properties of different types of stain

Curriculum Organizers – Application of Joinery Fundamentals

It is expected that students will be able to:

- Demonstrate the correct application of an oil stain to the trinket box project
- Demonstrate correct sanding techniques and project preparation

Curriculum Organizers – Safe Work Habits

It is expected that students will be able to:

- Describe safe handling procedures of different types of finishes

INSTRUCTIONAL COMPONENT:

- Teacher led Demonstrations
- Lecture
- Discussion
- Practical Assignments
- Projects

ASSESSMENT COMPONENT:

- Effective formative assessment via:
 - Clearly articulated and understood learning intentions and success criteria
 - Questions posed by students, peers and teachers to move learning forward
 - Discussions and dialogue
 - Feedback that is timely, clear and involves a plan
 - Students are resources for themselves and others – peer and self-assessment
 - Student ownership

Formative assessment used to adapt learning experiences and inquiry plans on an on-going basis to meet specific learning goals.

Development, awareness and action, based upon metacognition intended to lead to learner independence and self-coaching.

Summative Assessment:

Summative assessments will be determined as students demonstrate proficiency/mastery toward particular learning outcomes. Summative assessments and final grades will reflect the following:

- Students will work collaboratively with the teacher to determine summative achievement on assignments and letter grades based upon dialogue, and evidence of learning
- Behaviour and work habits will NOT be included when determining letter grades
- Marks will not be deducted for late work
- Extra credit and bonus marks will not be awarded
- Plagiarizing will not result in reduced marks/grades –the student will be required to demonstrate their learning authentically
- Attendance will not be considered toward letter grade
- Only individual learning demonstrated –no group marks – will be used to determine grades
- Letter grades will reflect learning towards the learning outcomes articulated above
- Letter grades will be based upon criteria provided/agreed upon toward the learning outcomes

- Letter grades will be determined in relation to the learning outcomes – not in comparison to the achievement of other students
- Poor work will not be assessed towards grades – students will only be assessed on quality work
- Professional judgment and evidence will be used to determine final letter grade in consultation with the student
- Zeros will not be assigned to missed assignments – all required assignments must be completed
- Formative or practice towards learning outcomes will not be included in final grade assessment
- Most recent evidence toward learning outcomes will be used to assign letter grades – learning is not averaged over time

LEARNING RESOURCES:

- BCIT Joinery Apprenticeship Text: Line A – N
- See BCIT Library Resource Guide
- Woodworkers Handtools: An Essential Guide
- Rick Peters
- Stirling Publishing