

## **COURSE CMA3400: PROPERTIES OF WOOD**

**Level:** First Period Apprenticeship

**Prerequisite:** CMA3900: Apprenticeship Safety

**Description:** Students develop knowledge, skills and attitudes in the areas of classification, properties and defects of solid woods commonly used in the cabinetmaker trade.

**Parameters:** Access to a materials work centre, complete with basic measuring, hand and power tools, and to instruction from an individual with journey person certification as a cabinetmaker.

**ILM Resources:** The Nature and Properties of Wood 360102a

**Outcomes:** The student will:

- 1. describe the classification, properties and defects of solid woods commonly used in cabinetmaking**
  - 1.1 describe and classify common woods used in the cabinetmaking industry, including:
    - 1.1.1 hardwoods
    - 1.1.2 softwoods
    - 1.1.3 exotic species
  - 1.2 describe the properties of common woods that make them adaptable to the cabinetmaking industry, including:
    - 1.2.1 structural strength
    - 1.2.2 appearance
    - 1.2.3 impact resistance
    - 1.2.4 surface durability (hardness)
    - 1.2.5 moisture and rot resistance
    - 1.2.6 dimensional stability
    - 1.2.7 compatibility with adhesives, stains and finishes
    - 1.2.8 compressive strength, tensile strength and shear resistance
    - 1.2.9 flexibility and workability
  - 1.3 describe the cellular structure of various hard and softwood species and their effect on performance and workability, including:
    - 1.3.1 the five anatomical structures of a tree trunk
    - 1.3.2 cell structure and growth
    - 1.3.3 chemical composition of wood
  - 1.4 describe the terms for various grain and figure patterns in wood, including:
    - 1.4.1 face grain
    - 1.4.2 edge grain
    - 1.4.3 end grain
    - 1.4.4 quartersawn pattern
    - 1.4.5 plainsawn or flatsawn pattern
    - 1.4.6 riftsawn pattern
    - 1.4.7 open grain
    - 1.4.8 close grain

**2. demonstrate basic competencies**

2.1 demonstrate fundamental skills to:

- 2.1.1 communicate
- 2.1.2 manage information
- 2.1.3 use numbers
- 2.1.4 think and solve problems

2.2 demonstrate personal management skills to:

- 2.2.1 demonstrate positive attitudes and behaviours
- 2.2.2 be responsible
- 2.2.3 be adaptable
- 2.2.4 learn continuously
- 2.2.5 work safely

2.3 demonstrate teamwork skills to:

- 2.3.1 work with others
- 2.3.2 participate in projects and tasks

**3. create a transitional strategy to accommodate personal changes and build personal values**

3.1 identify short-term and long-term goals

3.2 identify steps to achieve goals

## **COURSE CMA3405: PROCESSING LUMBER**

**Level:** First Period Apprenticeship

**Prerequisite:** CMA3400: Properties of Wood

**Description:** Students develop knowledge, skills and attitudes in the area of processing lumber, from harvesting to manufacturing finished products, related to the cabinetmaker trade.

**Parameters:** Access to a materials work centre, complete with basic measuring, hand and power tools, and to instruction from an individual with journey person certification as a cabinetmaker.

**ILM Resources:** Primary Processing of Hard and Soft Wood – Part A 360102bA; Primary Processing of Hard and Soft Wood – Part B 360102bB; Manufactured Sheet and Panel Products 360102c

**Outcomes:** The student will:

### **1. describe the processing of lumber from harvesting to manufacturing finished items**

- 1.1 describe the cutting, drying, grading and storing of hard and softwood lumber, including:
  - 1.1.1 flatsawn and quartersawn cutting methods
  - 1.1.2 rough, surfaced and worked milling classifications
  - 1.1.3 air drying and kiln drying methods
  - 1.1.4 softwood lumber grading and grade stamps
  - 1.1.5 hardwood lumber grading by classification; e.g., firsts and seconds (FAS); select; No. 1, No. 2 and No. 3 Common
- 1.2 describe natural defects in wood, including:
  - 1.2.1 grub holes
  - 1.2.2 pitch pockets and pitch streaks
  - 1.2.3 ring and through shake
  - 1.2.4 fungus and decay
  - 1.2.5 bark pockets and pinholes
  - 1.2.6 knots
- 1.3 describe manufactured defects in wood, including:
  - 1.3.1 machine offset and skip
  - 1.3.2 snipe, chipped or torn grain
  - 1.3.3 seasoning defects
- 1.4 identify sample boards by species and determine their respective grades

### **2. describe manufactured sheet products used in cabinetmaking**

- 2.1 describe the properties and grading of composite panels, overlays, plywood and bendable sheet goods, including:
  - 2.1.1 dimensional stability
  - 2.1.2 balanced construction
  - 2.1.3 performance requirements
  - 2.1.4 handling and storage
  - 2.1.5 cellulose-based fibre and adhesive boards and their specialty properties; e.g., particleboard, kerfcore and fibreboard
  - 2.1.6 structural sheathing; e.g., oriented strand board (OSB) and plywood

- 2.2 describe the various types of plywood and their uses, including:
  - 2.2.1 veneer core
  - 2.2.2 lumber core
  - 2.2.3 composite core
  - 2.2.4 particle core
  - 2.2.5 MDF core
  - 2.2.6 construction plywood
  - 2.2.7 medium-density overlay (MDO)
- 2.3 describe the application of composite panels, overlays, plywood and bendable sheet goods, including:
  - 2.3.1 high-pressure laminates (HPL)
  - 2.3.2 low-pressure laminates (LPL)
  - 2.3.3 special overlays; e.g., chemical resistance, bulletproofing, fire retardation and decorative appearance
- 3. demonstrate basic competencies**
  - 3.1 demonstrate fundamental skills to:
    - 3.1.1 communicate
    - 3.1.2 manage information
    - 3.1.3 use numbers
    - 3.1.4 think and solve problems
  - 3.2 demonstrate personal management skills to:
    - 3.2.1 demonstrate positive attitudes and behaviours
    - 3.2.2 be responsible
    - 3.2.3 be adaptable
    - 3.2.4 learn continuously
    - 3.2.5 work safely
  - 3.3 demonstrate teamwork skills to:
    - 3.3.1 work with others
    - 3.3.2 participate in projects and tasks
- 4. create a transitional strategy to accommodate personal changes and build personal values**
  - 4.1 identify short-term and long-term goals
  - 4.2 identify steps to achieve goals

## **COURSE CMA3410: ADHESIVES & FASTENERS**

<b>Level:</b>	First Period Apprenticeship
<b>Prerequisite:</b>	CMA3405: Processing Lumber
<b>Description:</b>	Students develop knowledge, skills and attitudes in the areas of adhesion and cohesion and the use of fasteners related to the cabinetmaker trade.
<b>Parameters:</b>	Access to a materials work centre, complete with basic measuring, hand and power tools, and to instruction from an individual with journeyman certification as a cabinetmaker.
<b>ILM Resources:</b>	Adhesives 360102d; Fasteners 360102e
<b>Outcomes:</b>	The student will:

### **1. describe the use of adhesives**

- 1.1 describe the principles of adhesion and cohesion, including:
  - 1.1.1 mechanical adhesion
  - 1.1.2 specific adhesion for non-porous materials; e.g., glass, plastics, metal, stone and ceramic
  - 1.1.3 specific adhesions for dissimilar materials; e.g., leather and glass; metal and wood; wood and concrete; and laminate and metal
- 1.2 describe the properties of adhesives, including:
  - 1.2.1 adhesive format; e.g., one-part or two-part adhesives
  - 1.2.2 thermoplastic or thermosetting
  - 1.2.3 open and closed assembly times
  - 1.2.4 moisture resistance and solvent resistance
  - 1.2.5 set and cure times
  - 1.2.6 shelf and pot life
  - 1.2.7 performance characteristics; e.g., shear resistance, impact resistance and strength over time
  - 1.2.8 safety considerations
- 1.3 describe common adhesives and their application, including:
  - 1.3.1 hide glue
  - 1.3.2 fish glue
  - 1.3.3 rice glue
  - 1.3.4 casein glue
  - 1.3.5 polyvinyl acetate (PVA)
  - 1.3.6 ethylene vinyl acetate (EVA)
  - 1.3.7 aliphatic resin glue
  - 1.3.8 urea resin or urea formaldehyde (UF)
  - 1.3.9 melamine resin (MF)
  - 1.3.10 phenolic resin (PF)
  - 1.3.11 resorcinol (RF)
  - 1.3.12 urethanes; e.g., polyurethane
  - 1.3.13 cyanoacrylate
  - 1.3.14 contact cements; e.g., thinner-based, gel and water-based contact cement
  - 1.3.15 elastomers; e.g., cement, mastic and silicone
  - 1.3.16 epoxy
  - 1.3.17 hot melt

## **2. describe the use of fasteners**

- 2.1 describe the fasteners used in cabinetmaking and their applications, including:
  - 2.1.1 nail types (e.g., brad, casing, panel, drywall, ring shank, concrete, box, finishing and common) and their shanks (e.g., smooth, annular ringed, barbed, fluted and spiral)
  - 2.1.2 staples; e.g., light-duty and heavy-duty staples
  - 2.1.3 screws and their head recess types and threads; e.g., wood, sheet metal, self-tapping, drywall, deck, lag, self-sealing and specialty
  - 2.1.4 ready-to-assemble (RTA) fasteners
  - 2.1.5 bolts; e.g., ready rod, draw bolt, stove bolt, machine screw, connector bolt, machine bolt and carriage bolt
  - 2.1.6 nuts; e.g., hex, self-locking, acorn and wing
  - 2.1.7 washers; e.g., lock, flat, inside star, outside star and cup
  - 2.1.8 anchors; e.g., plastic, masonry, expansion shield, drive-in pin, wedge/sleeve, drop-in, screw-in, toggle bolt and hollow wall
- 2.2 demonstrate the usage of fasteners used in cabinetmaking

## **3. demonstrate basic competencies**

- 3.1 demonstrate fundamental skills to:
  - 3.1.1 communicate
  - 3.1.2 manage information
  - 3.1.3 use numbers
  - 3.1.4 think and solve problems
- 3.2 demonstrate personal management skills to:
  - 3.2.1 demonstrate positive attitudes and behaviours
  - 3.2.2 be responsible
  - 3.2.3 be adaptable
  - 3.2.4 learn continuously
  - 3.2.5 work safely
- 3.3 demonstrate teamwork skills to:
  - 3.3.1 work with others
  - 3.3.2 participate in projects and tasks

## **4. create a transitional strategy to accommodate personal changes and build personal values**

- 4.1 identify short-term and long-term goals
- 4.2 identify steps to achieve goals

## **COURSE CMA3415: ABRASIVES & JOINERY**

- Level:** First Period Apprenticeship
- Prerequisite:** CMA3410: Adhesives & Fasteners
- Description:** Students develop knowledge, skills and attitudes in the use of abrasives and common joints for various applications related to the cabinetmaker trade.
- Parameters:** Access to a materials work centre, complete with basic measuring, hand and power tools, and to instruction from an individual with journeyman certification as a cabinetmaker.
- ILM Resources:** Abrasives 360102f; Principles of Wood Joinery 360102g
- Outcomes:** The student will:

### **1. describe the usage of abrasives**

1.1 describe the abrasives used in cabinetmaking and their applications, including:

- 1.1.1 coated
- 1.1.2 loose
- 1.1.3 solid
- 1.1.4 natural; e.g., garnet, flint, emery, pumice, rottenstone and tripoli
- 1.1.5 synthetic; e.g. aluminum oxide, silicon carbide and aluminum zirconia

1.2 describe the properties, grits and usage of abrasives, including:

- 1.2.1 machine sanding grit 16–50
- 1.2.2 bench work grit 60–280
- 1.2.3 spray booth grit 320–600
- 1.2.4 grit backing materials; e.g., paper, cloth, fibre, sponges, rubber and foam
- 1.2.5 adhesive and resin coats
- 1.2.6 open and closed coats

1.3 demonstrate the usage of abrasives used in cabinetmaking

### **2. describe the principles of wood joinery and the factors affecting common joints for various applications**

2.1 describe the principles involved in joining wood, including performance requirements, fit, surface quality and grain orientation:

- 2.1.1 form, function and physical elements; e.g., strength, loads, environment, heat and moisture
- 2.1.2 wood-fastened, interlocking and glued joints (internal and external joints)
- 2.1.3 grain configurations; e.g., edge to edge, face to face, side grain and end to face or end to end
- 2.1.4 scarf joints, mitre joints, interlocking glued joints, mortise and tenon joints

2.2 describe the stresses that affect the performance of a given joint, including:

- 2.2.1 tension
- 2.2.2 compression
- 2.2.3 sheer
- 2.2.4 racking

- 2.3 describe the selection of appropriate joinery for a given situation, including:
  - 2.3.1 glued joints
  - 2.3.2 wood-fastened joints
  - 2.3.3 interlocking joints
- 2.4 demonstrate the usage of common woodworking joints
- 3. demonstrate basic competencies**
  - 3.1 demonstrate fundamental skills to:
    - 3.1.1 communicate
    - 3.1.2 manage information
    - 3.1.3 use numbers
    - 3.1.4 think and solve problems
  - 3.2 demonstrate personal management skills to:
    - 3.2.1 demonstrate positive attitudes and behaviours
    - 3.2.2 be responsible
    - 3.2.3 be adaptable
    - 3.2.4 learn continuously
    - 3.2.5 work safely
  - 3.3 demonstrate teamwork skills to:
    - 3.3.1 work with others
    - 3.3.2 participate in projects and tasks
- 4. create a transitional strategy to accommodate personal changes and build personal values**
  - 4.1 identify short-term and long-term goals
  - 4.2 identify steps to achieve goals



## **COURSE CMA3420: HAND TOOLS 1**

<b>Level:</b>	First Period Apprenticeship
<b>Prerequisite:</b>	CMA3415: Abrasives & Joinery
<b>Description:</b>	Students develop knowledge, skills and attitudes in the use of measuring, layout, levelling and hand tools related to the cabinetmaker trade.
<b>Parameters:</b>	Access to a materials work centre, complete with basic measuring, hand and power tools, and to instruction from an individual with journey person certification as a cabinetmaker.
<b>ILM Resources:</b>	Measuring and Layout Tools 360103a; Hand Planes 360103b; Scrapers, Chisels, Gouges and Knives 360103c
<b>Outcomes:</b>	The student will:

### **1. describe measuring and layout tools used in cabinetmaking**

1.1 describe the usage, maintenance, and storage of measuring, layout, alignment and levelling tools, including:

- 1.1.1 rules; e.g., bench rule, hook rule, pocket rule and folding or zigzag rule
- 1.1.2 steel tape measures; e.g., imperial, metric and combined or dual
- 1.1.3 long tapes
- 1.1.4 squares; e.g., try, combination, framing, engineer's, set, mitre and sliding T bevel
- 1.1.5 levels; e.g., spirit, pocket or torpedo, line and water
- 1.1.6 plumb bobs
- 1.1.7 calipers; e.g., simple, Vernier, inside, outside, hermaphrodite, dial or digital
- 1.1.8 marking tools; e.g., pencil, scratch awl, striking knife and chalk line
- 1.1.9 marking gauges; e.g., basic, cutting, panel, mortise and butt
- 1.1.10 circular layout tools; e.g., compass, dividers and trammel points
- 1.1.11 other layout tools; e.g., stair gauge, flexible and French curves, profile gauge, tapered gauge, dial gauge and stud finder

1.2 demonstrate the usage, maintenance and storage of measuring, layout, alignment and levelling tools

### **2. describe hand planes used in cabinetmaking**

2.1 describe assorted basic hand and specialty planes, including:

- 2.1.1 smooth plane
- 2.1.2 jack plane
- 2.1.3 fore plane
- 2.1.4 jointer plane
- 2.1.5 block plane
- 2.1.6 bench and fillister rabbet plane
- 2.1.7 shoulder plane
- 2.1.8 router plane
- 2.1.9 bullnose plane
- 2.1.10 compass or circular plane
- 2.1.11 edge-trimming plane
- 2.1.12 spokeshave
- 2.1.13 tothing plane

2.2 demonstrate the usage, maintenance and storage of hand planes

- 3. describe scrapers, chisels, gouges and knives used in cabinetmaking**
  - 3.1 describe the preparation, usage, maintenance and storage of scraping tools, including:
    - 3.1.1 hand scrapers
    - 3.1.2 cabinet scrapers
    - 3.1.3 curved scrapers
    - 3.1.4 glue or pull scrapers
    - 3.1.5 wall scrapers
    - 3.1.6 scratch beaders
  - 3.2 demonstrate the preparation, usage, maintenance and storage of chisels, gouges and knives, including:
    - 3.2.1 tang, socket and moulded plastic chisels
    - 3.2.2 mortise chisels
    - 3.2.3 striking, chip carving and utility knives
- 4. demonstrate basic competencies**
  - 4.1 demonstrate fundamental skills to:
    - 4.1.1 communicate
    - 4.1.2 manage information
    - 4.1.3 use numbers
    - 4.1.4 think and solve problems
  - 4.2 demonstrate personal management skills to:
    - 4.2.1 demonstrate positive attitudes and behaviours
    - 4.2.2 be responsible
    - 4.2.3 be adaptable
    - 4.2.4 learn continuously
    - 4.2.5 work safely
  - 4.3 demonstrate teamwork skills to:
    - 4.3.1 work with others
    - 4.3.2 participate in projects and tasks
- 5. create a transitional strategy to accommodate personal changes and build personal values**
  - 5.1 identify short-term and long-term goals
  - 5.2 identify steps to achieve goals

## **COURSE CMA3425: HAND TOOLS 2**

**Level:** First Period Apprenticeship

**Prerequisite:** CMA3420: Hand Tools 1

**Description:** Students develop knowledge, skills and attitudes in the use of basic hand tools for clamping, cutting and fastening related to the cabinetmaker trade.

**Parameters:** Access to a materials work centre, complete with basic measuring, hand and power tools, and to instruction from an individual with journeyman certification as a cabinetmaker.

**ILM Resources:** Assembly, Dismantling and Clamping Tools 360103d; Hand Drills and Saws 360103e; Explosive-Actuated Tools 360103l

**Outcomes:** The student will:

- 1. demonstrate assembly, dismantling and clamping tools used in cabinetmaking**
  - 1.1 describe the usage, maintenance and storage of assembly, dismantling and clamping tools
  - 1.2 demonstrate the usage, maintenance and storage of assembly, dismantling and clamping tools
- 2. demonstrate the usage of hand saws**
  - 2.1 describe the usage, maintenance and storage of hand drills and hand saws
  - 2.2 demonstrate the usage, maintenance and storage of hand drills and hand saws
- 3. demonstrate the safe operation of explosive-actuated tools**
  - 3.1 describe explosive-actuated tool power loads, power load strength and safety requirements
  - 3.2 describe explosive-actuated tool fasteners, accessories and applications
  - 3.3 describe base material suitability and related fastening requirements
  - 3.4 demonstrate explosive-actuated system safety and firing procedures
  - 3.5 perform tool maintenance and use an explosive-actuated tool safely
- 4. demonstrate basic competencies**
  - 4.1 demonstrate fundamental skills to:
    - 4.1.1 communicate
    - 4.1.2 manage information
    - 4.1.3 use numbers
    - 4.1.4 think and solve problems
  - 4.2 demonstrate personal management skills to:
    - 4.2.1 demonstrate positive attitudes and behaviours
    - 4.2.2 be responsible
    - 4.2.3 be adaptable
    - 4.2.4 learn continuously
    - 4.2.5 work safely
  - 4.3 demonstrate teamwork skills to:
    - 4.3.1 work with others
    - 4.3.2 participate in projects and tasks
- 5. create a transitional strategy to accommodate personal changes and build personal values**
  - 5.1 identify short-term and long-term goals
  - 5.2 identify steps to achieve goals

## **COURSE CMA3430: ELECTRIC & AIR TOOLS**

**Level:** First Period Apprenticeship

**Prerequisite:** CMA3425: Hand Tools 2

**Description:** Students develop knowledge, skills and attitudes in the use of portable power and pneumatic tools related to the cabinetmaker trade.

**Parameters:** Access to a materials work centre, complete with basic measuring, hand and power tools, and to instruction from an individual with journey person certification as a cabinetmaker.

**ILM Resources:** Portable Power Tools – Part A 360103fA; Portable Power Tools – Part B 360103fB; Pneumatic Tools and Fasteners 360103g

**Outcomes:** The student will:

### **1. demonstrate the operation and maintenance of portable power tools**

- 1.1 demonstrate the operation, application and regular maintenance of portable power drills and screw guns, including:
  - 1.1.1 cordless drills
  - 1.1.2 corded drills
  - 1.1.3 right-angle drills
  - 1.1.4 hammer drills
  - 1.1.5 drywall screw guns
  - 1.1.6 auto-feed screwdriver attachments
- 1.2 demonstrate the operation, application and regular maintenance of portable power saws, including:
  - 1.2.1 conventional circular saws
  - 1.2.2 worm drive saws
  - 1.2.3 jigsaws or sabre saws
  - 1.2.4 reciprocating saws
  - 1.2.5 mitre saws
  - 1.2.6 sliding compound mitre saws
- 1.3 demonstrate the operation, application and regular maintenance of portable power planes
- 1.4 demonstrate the operation, application and regular maintenance of power sanders, including:
  - 1.4.1 portable belt sanders
  - 1.4.2 in-line or reciprocating sanders
  - 1.4.3 orbital sanders
- 1.5 demonstrate the operation, application and regular maintenance of routers, including:
  - 1.5.1 rack and pinion base routers
  - 1.5.2 screw base routers
  - 1.5.3 plunge base routers
  - 1.5.4 electronic variable speed routers
  - 1.5.5 router tables
  - 1.5.6 laminate trimmers
- 1.6 demonstrate the operation, application and regular maintenance of plate joiners

## **2. demonstrate the operation and maintenance of pneumatic tools and equipment**

- 2.1 describe the operation and maintenance of pneumatic tools and equipment, including:
  - 2.1.1 drills
  - 2.1.2 sanders
  - 2.1.3 screw guns
  - 2.1.4 spray equipment
  - 2.1.5 blowers
  - 2.1.6 sandblasting guns
  - 2.1.7 air wrenches
  - 2.1.8 air hammers
  - 2.1.9 caulking guns and glue applicators
- 2.2 demonstrate the operation, application and regular maintenance of pneumatic nailing and stapling equipment and fasteners, including:
  - 2.2.1 strip nailers
  - 2.2.2 coil nailers
  - 2.2.3 framing nailers
  - 2.2.4 palm nailers
  - 2.2.5 finishing nailers
  - 2.2.6 brad nailers
  - 2.2.7 hardwood floor nailers
  - 2.2.8 wide crown staplers
  - 2.2.9 narrow crown staplers
  - 2.2.10 tackers
- 2.3 demonstrate the operation, application and regular maintenance of pneumatic clamping and assemble equipment and vacuum tables, including:
  - 2.3.1 pneumatic rams
  - 2.3.2 panel clamps
  - 2.3.3 frame clamps
  - 2.3.4 hold-downs
  - 2.3.5 case clamps
- 2.4 demonstrate the maintenance procedures for compressors and pneumatic-powered equipment, including:
  - 2.4.1 reciprocating compressors
  - 2.4.2 rotary screw compressors
  - 2.4.3 rotary sliding vane compressors

## **3. demonstrate basic competencies**

- 3.1 demonstrate fundamental skills to:
  - 3.1.1 communicate
  - 3.1.2 manage information
  - 3.1.3 use numbers
  - 3.1.4 think and solve problems
- 3.2 demonstrate personal management skills to:
  - 3.2.1 demonstrate positive attitudes and behaviours
  - 3.2.2 be responsible
  - 3.2.3 be adaptable
  - 3.2.4 learn continuously
  - 3.2.5 work safely
- 3.3 demonstrate teamwork skills to:
  - 3.3.1 work with others
  - 3.3.2 participate in projects and tasks

- 4. create a transitional strategy to accommodate personal changes and build personal values**
  - 4.1 identify short-term and long-term goals
  - 4.2 identify steps to achieve goals

## **COURSE CMA3435: POWER SAWS**

<b>Level:</b>	First Period Apprenticeship
<b>Prerequisite:</b>	CMA3430: Electric & Air Tools
<b>Description:</b>	Students develop knowledge, skills and attitudes in the use of table, panel, radial arm and CNC saws related to the cabinetmaker trade.
<b>Parameters:</b>	Access to a materials work centre, complete with basic measuring, hand and power tools, and to instruction from an individual with journey person certification as a cabinetmaker.
<b>ILM Resource:</b>	Table, Panel, Radial Arm and CNC Saws 360103h
<b>Outcomes:</b>	The student will:

### **1. demonstrate the operation, application and regular maintenance of table, panel, radial arm and CNC saws**

- 1.1 describe the operation, application and maintenance of stationary power saws, including:
  - 1.1.1 table saws
  - 1.1.2 panel saws; e.g., vertical and horizontal
  - 1.1.3 radial arm saws
  - 1.1.4 CNC saws
- 1.2 describe the jigs and safety devices related to table, panel, radial arm and CNC saws
- 1.3 demonstrate the operation, application and regular maintenance of table, panel, radial arm and CNC saws and their accessories

### **2. demonstrate basic competencies**

- 2.1 demonstrate fundamental skills to:
  - 2.1.1 communicate
  - 2.1.2 manage information
  - 2.1.3 use numbers
  - 2.1.4 think and solve problems
- 2.2 demonstrate personal management skills to:
  - 2.2.1 demonstrate positive attitudes and behaviours
  - 2.2.2 be responsible
  - 2.2.3 be adaptable
  - 2.2.4 learn continuously
  - 2.2.5 work safely
- 2.3 demonstrate teamwork skills to:
  - 2.3.1 work with others
  - 2.3.2 participate in projects and tasks

### **3. create a transitional strategy to accommodate personal changes and build personal values**

- 3.1 identify short-term and long-term goals
- 3.2 identify steps to achieve goals

## **COURSE CMA3440: TOOLING EQUIPMENT**

**Level:** First Period Apprenticeship

**Prerequisite:** CMA3435: Power Saws

**Description:** Students develop knowledge, skills and attitudes in the design and use of tooling equipment related to the cabinetmaker trade.

**Parameters:** Access to a materials work centre, complete with basic measuring, hand and power tools, and to instruction from an individual with journeyperson certification as a cabinetmaker.

**ILM Resources:** Tooling for Portable and Stationary Equipment 360103i

**Outcomes:** The student will:

### **1. describe the design and usage of tooling for table, panel and CNC saws and routers**

- 1.1 describe the tooling used in saws, including material, tooth designs, dado heads, maintenance and sharpening, including:
  - 1.1.1 rip blades
  - 1.1.2 combination blades
  - 1.1.3 crosscut blades
  - 1.1.4 triple-chip blades
- 1.2 describe the tooling used in saws and CNC machines, including their use
- 1.3 describe the tooling used in routers, including material, profiles, maintenance and sharpening, including:
  - 1.3.1 bevelling
  - 1.3.2 drilling
  - 1.3.3 rounding
  - 1.3.4 grooving
  - 1.3.5 rabbeting
  - 1.3.6 chamfering
  - 1.3.7 custom profiles
- 1.4 demonstrate the tooling used in table, panel and CNC saws and routers

### **2. demonstrate basic competencies**

- 2.1 demonstrate fundamental skills to:
  - 2.1.1 communicate
  - 2.1.2 manage information
  - 2.1.3 use numbers
  - 2.1.4 think and solve problems
- 2.2 demonstrate personal management skills to:
  - 2.2.1 demonstrate positive attitudes and behaviours
  - 2.2.2 be responsible
  - 2.2.3 be adaptable
  - 2.2.4 learn continuously
  - 2.2.5 work safely
- 2.3 demonstrate teamwork skills to:
  - 2.3.1 work with others
  - 2.3.2 participate in projects and tasks



- 3. create a transitional strategy to accommodate personal changes and build personal values**
  - 3.1 identify short-term and long-term goals
  - 3.2 identify steps to achieve goals

## **COURSE CMA3445: BAND SAWS & PLANERS**

**Level:** First Period Apprenticeship

**Prerequisite:** CMA3440: Tooling Equipment

**Description:** Students develop knowledge, skills and attitudes in the use of band saws, drill presses, jointers and thickness planers related to the cabinetmaker trade.

**Parameters:** Access to a materials work centre, complete with basic measuring, hand and power tools, and to instruction from an individual with journeyman certification as a cabinetmaker.

**ILM Resources:** Band Saws and Drill Presses 360103j; Jointers and Thickness Planers 360103k

**Outcomes:** The student will:

- 1. demonstrate the operation, application and regular maintenance of band saws and drill presses**
  - 1.1 describe band saws and drill presses
  - 1.2 demonstrate typical applications for band saws and drill presses
  - 1.3 demonstrate the set-up procedures for band saws and drill presses
  - 1.4 demonstrate the maintenance of band saws and drill presses
  - 1.5 demonstrate the maintenance and storage of drill bits
- 2. demonstrate the operation, application and maintenance of jointers and thickness planers**
  - 2.1 describe the operation, application and maintenance of jointers and thickness planers
  - 2.2 demonstrate the operation, application and maintenance of jointers and thickness planers
- 3. demonstrate basic competencies**
  - 3.1 demonstrate fundamental skills to:
    - 3.1.1 communicate
    - 3.1.2 manage information
    - 3.1.3 use numbers
    - 3.1.4 think and solve problems
  - 3.2 demonstrate personal management skills to:
    - 3.2.1 demonstrate positive attitudes and behaviours
    - 3.2.2 be responsible
    - 3.2.3 be adaptable
    - 3.2.4 learn continuously
    - 3.2.5 work safely
  - 3.3 demonstrate teamwork skills to:
    - 3.3.1 work with others
    - 3.3.2 participate in projects and tasks
- 4. create a transitional strategy to accommodate personal changes and build personal values**
  - 4.1 identify short-term and long-term goals
  - 4.2 identify steps to achieve goals

## **COURSE CMA3450: DRAFTING BASICS**

- Level:** First Period Apprenticeship
- Prerequisite:** CMA3445: Band Saws & Planers
- Description:** Students develop knowledge, skills and attitudes in the use of drawing instruments and orthographic drawings related to the cabinetmaker trade.
- Parameters:** Access to a materials work centre, complete with basic measuring, hand and power tools, and to instruction from an individual with journey person certification as a cabinetmaker.
- ILM Resources:** Drafting Basics 360104a; Orthographic Drawings 360104b
- Outcomes:** The student will:

### **1. demonstrate the use of basic drawing instruments**

- 1.1 describe the functions of basic drawing instruments, including:
  - 1.1.1 pencils
  - 1.1.2 T-square
  - 1.1.3 set square
  - 1.1.4 architect's scale ruler
  - 1.1.5 protractor
  - 1.1.6 compass/divider
  - 1.1.7 templates
  - 1.1.8 drafting board/table
  - 1.1.9 accessories; e.g., erasing shield, sanding pad and pencil pointer
- 1.2 demonstrate the use of drafting equipment to complete geometric exercises, including:
  - 1.2.1 bisect a line at 90 degrees
  - 1.2.2 bisect an angle
  - 1.2.3 draw 60 and 30 degree angles
  - 1.2.4 draw 45 and 22.5 degree angles
  - 1.2.5 find the centre of a circle
  - 1.2.6 draw a hexagon within a circle
  - 1.2.7 draw an octagon within a square
  - 1.2.8 draw a pentagon with a circle
  - 1.2.9 draw parallel lines
- 1.3 describe the applications of geometry in trade situations, including:
  - 1.3.1 squaring with a measuring tape
  - 1.3.2 using a framing square to lay out 45 degree lines
  - 1.3.3 using the Pythagorean theorem of marking 90 degree angles
  - 1.3.4 laying out of a mitre for unusual angles
- 1.4 produce shapes, angles and drawings to scale with the basic drafting instruments, including:
  - 1.4.1 drawing lines to scale
  - 1.4.2 drawing an octagon centred on a page

- 2. demonstrate the principles of orthographic drawings to produce a three view drawing of a shop project**
  - 2.1 describe the concepts of orthographic presentations, including:
    - 2.1.1 top view
    - 2.1.2 front view
    - 2.1.3 right side view
    - 2.1.4 left side view
    - 2.1.5 rear view
    - 2.1.6 bottom view
  - 2.2 demonstrate the concepts of orthographic projections
- 3. demonstrate basic competencies**
  - 3.1 demonstrate fundamental skills to:
    - 3.1.1 communicate
    - 3.1.2 manage information
    - 3.1.3 use numbers
    - 3.1.4 think and solve problems
  - 3.2 demonstrate personal management skills to:
    - 3.2.1 demonstrate positive attitudes and behaviours
    - 3.2.2 be responsible
    - 3.2.3 be adaptable
    - 3.2.4 learn continuously
    - 3.2.5 work safely
  - 3.3 demonstrate teamwork skills to:
    - 3.3.1 work with others
    - 3.3.2 participate in projects and tasks
- 4. create a transitional strategy to accommodate personal changes and build personal values**
  - 4.1 identify short-term and long-term goals
  - 4.2 identify steps to achieve goals

## **COURSE CMA3455: DRAWINGS & CUT LISTS**

<b>Level:</b>	First Period Apprenticeship
<b>Prerequisite:</b>	CMA3450: Drafting Basics
<b>Description:</b>	Students develop knowledge, skills and attitudes in the use of drawing guidelines and interpretations and developing cutting lists related to the cabinetmaker trade.
<b>Parameters:</b>	Access to a materials work centre, complete with basic measuring, hand and power tools, and to instruction from an individual with journeyman certification as a cabinetmaker.
<b>ILM Resources:</b>	Basic Drawing Standards 360104c; Interpreting Shop Drawings and Cutting Lists 360104d
<b>Outcomes:</b>	The student will:

### **1. demonstrate the use of basic drawing guidelines and interpretation skills to create the orthographic views, sectional views, details and cutting lists required for a project**

- 1.1 describe line types used in orthographic drawings, including:
  - 1.1.1 border
  - 1.1.2 construction
  - 1.1.3 object
  - 1.1.4 hidden
  - 1.1.5 centre
  - 1.1.6 dimension
  - 1.1.7 extension
  - 1.1.8 leader
  - 1.1.9 text
  - 1.1.10 cutting plane
  - 1.1.11 break
  - 1.1.12 material
- 1.2 demonstrate correct dimensioning methods and techniques, including:
  - 1.2.1 unidirectional dimensioning
  - 1.2.2 aligned dimensioning
  - 1.2.3 machine dimensioning
  - 1.2.4 architectural dimensioning
- 1.3 describe section and details and the use of materials symbols, including:
  - 1.3.1 cross-section
  - 1.3.2 partial section
  - 1.3.3 horizontal section
  - 1.3.4 transverse section
  - 1.3.5 offset section
- 1.4 describe page layout and centring techniques, including:
  - 1.4.1 title box
  - 1.4.2 drawing area
  - 1.4.3 vertical and horizontal spacing

- 2. describe shop drawings and develop cutting lists**
  - 2.1 interpret shop drawings, including:
    - 2.1.1 line types
    - 2.1.2 material symbols
    - 2.1.3 dimensions
    - 2.1.4 specifications
    - 2.1.5 joinery choices
    - 2.1.6 types and grades of material
    - 2.1.7 grain direction
  - 2.2 develop a cutting list for a basic shop project from a working drawing
- 3. demonstrate basic competencies**
  - 3.1 demonstrate fundamental skills to:
    - 3.1.1 communicate
    - 3.1.2 manage information
    - 3.1.3 use numbers
    - 3.1.4 think and solve problems
  - 3.2 demonstrate personal management skills to:
    - 3.2.1 demonstrate positive attitudes and behaviours
    - 3.2.2 be responsible
    - 3.2.3 be adaptable
    - 3.2.4 learn continuously
    - 3.2.5 work safely
  - 3.3 demonstrate teamwork skills to:
    - 3.3.1 work with others
    - 3.3.2 participate in projects and tasks
- 4. create a transitional strategy to accommodate personal changes and build personal values**
  - 4.1 identify short-term and long-term goals
  - 4.2 identify steps to achieve goals

## **COURSE CMA3460: CAD & PRINT READING**

**Level:** First Period Apprenticeship

**Prerequisite:** CMA3455: Drawings & Cut Lists

**Description:** Students develop knowledge, skills and attitudes in the use of computers and computer-aided drafting (CAD) and residential print reading related to the cabinetmaker trade.

**Parameters:** Access to a materials work centre, complete with computers with appropriate software and basic measuring, hand and power tools, and to instruction from an individual with journeyperson certification as a cabinetmaker.

**ILM Resources:** Orientation to Computers and Computer Aided Design (CAD) 360104e; Residential Print Reading – Part A 360104fA; Residential Print Reading – Part B 360104fB

**Outcomes:** The student will:

### **1. draw simple objects using CAD**

- 1.1 describe basic computer systems and CAD
- 1.2 describe the basic two-dimensional CAD system and commands, including:
  - 1.2.1 scales
  - 1.2.2 toolbars
  - 1.2.3 nodes
  - 1.2.4 lines
  - 1.2.5 circles
  - 1.2.6 arcs
  - 1.2.7 splines
  - 1.2.8 copy command
  - 1.2.9 mirror command
  - 1.2.10 undo, escape, zoom and erase commands
- 1.3 draw joints with horizontal and vertical lines using CAD

### **2. interpret residential prints**

- 2.1 interpret residential prints to isolate the cabinetmaker's work, including:
  - 2.1.1 plans
  - 2.1.2 elevations
  - 2.1.3 cross-sections
  - 2.1.4 sections
  - 2.1.5 details
  - 2.1.6 specifications
  - 2.1.7 abbreviations
- 2.2 interpret residential plans to determine the interaction of other related building trades, including:
  - 2.2.1 carpenter
  - 2.2.2 plumber
  - 2.2.3 electrician
  - 2.2.4 sheet metal worker
  - 2.2.5 painter and decorator

**3. demonstrate basic competencies**

3.1 demonstrate fundamental skills to:

- 3.1.1 communicate
- 3.1.2 manage information
- 3.1.3 use numbers
- 3.1.4 think and solve problems

3.2 demonstrate personal management skills to:

- 3.2.1 demonstrate positive attitudes and behaviours
- 3.2.2 be responsible
- 3.2.3 be adaptable
- 3.2.4 learn continuously
- 3.2.5 work safely

3.3 demonstrate teamwork skills to:

- 3.3.1 work with others
- 3.3.2 participate in projects and tasks

**4. create a transitional strategy to accommodate personal changes and build personal values**

4.1 identify short-term and long-term goals

4.2 identify steps to achieve goals



## **COURSE CMA3465: TRADE MATHEMATICS**

**Level:** First Period Apprenticeship

**Prerequisite:** None

**Description:** Students develop knowledge, skills and attitudes in applying mathematical concepts to solve problems related to the cabinetmaker trade.

**Parameters:** Access to a materials work centre, complete with basic measuring, hand and power tools, and to instruction from an individual with journeyperson certification as a cabinetmaker.

**ILM Resources:** Basic Math Concepts – Part A 360105aA; Basic Math Concepts – Part B 360105aB; Area, Perimeter, Board Feet and Volumes – Part A 360105bA; Area, Perimeter, Board Feet and Volumes – Part B 360105bB; Ratio and Proportion, and Percentage 360105c

**Outcomes:** The student will:

### **1. solve trade-related mathematics problems in both the metric (SI) and imperial systems of measurement**

- 1.1 perform basic math concepts and operations
- 1.2 perform basic calculator functions and operations, including:
  - 1.2.1 addition and subtraction
  - 1.2.2 multiplication and division
  - 1.2.3 exponents
  - 1.2.4 square roots
- 1.3 describe the use of metric and imperial measurement systems, including:
  - 1.3.1 linear measurement
  - 1.3.2 area measurement
  - 1.3.3 volume measurement
  - 1.3.4 mass (weight) measurement
- 1.4 perform calculations involving fractions, including:
  - 1.4.1 addition and subtraction
  - 1.4.2 multiplication and division
  - 1.4.3 converting between fractions and decimal numbers
- 1.5 convert measurements between the metric and imperial systems, including:
  - 1.5.1 linear measurement
  - 1.5.2 area measurement
  - 1.5.3 volume measurement
  - 1.5.4 mass measurement
  - 1.5.5 temperature
- 1.6 perform calculations with equations, including:
  - 1.6.1 addition and subtraction
  - 1.6.2 multiplication and division
  - 1.6.3 exponents and roots
- 1.7 perform calculations using the Pythagorean theorem

- 2. calculate area and volume for various shapes and objects**
  - 2.1 use formulas to calculate area and perimeter of:
    - 2.1.1 equilateral shapes
    - 2.1.2 rectangles
    - 2.1.3 parallelograms
    - 2.1.4 trapezoids
    - 2.1.5 triangles
    - 2.1.6 circles
  - 2.2 use formulas to calculate board feet and volume, including:
    - 2.2.1 gross materials
    - 2.2.2 net materials
    - 2.2.3 shrinkage and waste
- 3. solve various trade-related problems involving ratio and proportion and percentage**
  - 3.1 perform ratio and proportion calculations to solve trade-related problems, including:
    - 3.1.1 direct proportion calculations
    - 3.1.2 indirect proportion calculations
  - 3.2 perform percentage calculations to solve trade-related problems, including:
    - 3.2.1 converting percent to decimal
    - 3.2.2 converting decimal to percent
    - 3.2.3 calculating waste factor
    - 3.2.4 calculating shrinkage factor
- 4. demonstrate basic competencies**
  - 4.1 demonstrate fundamental skills to:
    - 4.1.1 communicate
    - 4.1.2 manage information
    - 4.1.3 use numbers
    - 4.1.4 think and solve problems
  - 4.2 demonstrate personal management skills to:
    - 4.2.1 demonstrate positive attitudes and behaviours
    - 4.2.2 be responsible
    - 4.2.3 be adaptable
    - 4.2.4 learn continuously
    - 4.2.5 work safely
  - 4.3 demonstrate teamwork skills to:
    - 4.3.1 work with others
    - 4.3.2 participate in projects and tasks
- 5. create a transitional strategy to accommodate personal changes and build personal values**
  - 5.1 identify short-term and long-term goals
  - 5.2 identify steps to achieve goals

## **COURSE CMA3470: CMA PRACTICUM A**

**Level:** First Period Apprenticeship

**Prerequisite:** None

**Description:** Students, on the work site, continue to develop and refine those competencies developed in related Career and Technology Studies (CTS) occupational areas, previous practicums and other experiences.

**Parameters:** This course should be accessed only by students continuing to work toward attaining a recognized credential offered by an agency external to the school. Practicum courses extend the competencies developed in related CTS occupational areas. The practicum courses may not be delivered as stand-alone courses and may not be combined with core courses. This course may not be used in conjunction with Registered Apprenticeship Program courses. This practicum course may be delivered on- or off-campus. Instruction must be delivered by a qualified teacher with journeyperson certification or an experienced professional with journeyperson certification, who is under the supervision of the qualified teacher; both must be authorized to supervise trainees for the external credential.

**Outcomes:** The student will:

- 1. perform assigned tasks and responsibilities efficiently and effectively, as required by the agency granting credentials**
  - 1.1 identify regulations and regulatory bodies related to the credential
  - 1.2 describe personal roles and responsibilities, including:
    - 1.2.1 key responsibilities
    - 1.2.2 support functions/responsibilities
    - 1.2.3 code of ethics
  - 1.3 describe personal work responsibilities and categorize them as:
    - 1.3.1 routine tasks; e.g., daily, weekly, monthly, yearly
    - 1.3.2 non-routine tasks; e.g., emergencies
    - 1.3.3 tasks requiring personal judgement
    - 1.3.4 tasks requiring approval of a supervisor
- 2. analyze personal performance in relation to established standards**
  - 2.1 evaluate application of competencies developed in related CTS courses
  - 2.2 evaluate standards of performance in terms of:
    - 2.2.1 quality of work
    - 2.2.2 quantity of work
  - 2.3 evaluate adherence to workplace policies and procedures related to health and safety
  - 2.4 evaluate the work environment in terms of:
    - 2.4.1 location
    - 2.4.2 floor plan of work area
    - 2.4.3 analysis of workflow patterns

2.5 evaluate a professional in a related occupation in terms of:

2.5.1 training and certification

2.5.2 interpersonal skills

2.5.3 technical skills

2.5.4 professional ethics

**3. demonstrate basic competencies**

3.1 demonstrate fundamental skills to:

3.1.1 communicate

3.1.2 manage information

3.1.3 use numbers

3.1.4 think and solve problems

3.2 demonstrate personal management skills to:

3.2.1 demonstrate positive attitudes and behaviours

3.2.2 be responsible

3.2.3 be adaptable

3.2.4 learn continuously

3.2.5 work safely

3.3 demonstrate teamwork skills to:

3.3.1 work with others

3.3.2 participate in projects and tasks

## **COURSE CMA3475: CMA PRACTICUM B**

**Level:** First Period Apprenticeship

**Prerequisite:** None

**Description:** Students, on the work site, continue to develop and refine those competencies developed in related Career and Technology Studies (CTS) occupational areas, previous practicums and other experiences.

**Parameters:** This course should be accessed only by students continuing to work toward attaining a recognized credential offered by an agency external to the school. Practicum courses extend the competencies developed in related CTS occupational areas. The practicum courses may not be delivered as stand-alone courses and may not be combined with core courses. This course may not be used in conjunction with Registered Apprenticeship Program courses. This practicum course may be delivered on- or off-campus. Instruction must be delivered by a qualified teacher with journeyperson certification or an experienced professional with journeyperson certification, who is under the supervision of the qualified teacher; both must be authorized to supervise trainees for the external credential.

**Outcomes:** The student will:

- 1. perform assigned tasks and responsibilities efficiently and effectively, as required by the agency granting credentials**
  - 1.1 identify regulations and regulatory bodies related to the credential
  - 1.2 describe personal roles and responsibilities, including:
    - 1.2.1 key responsibilities
    - 1.2.2 support functions/responsibilities
    - 1.2.3 code of ethics
  - 1.3 describe personal work responsibilities and categorize them as:
    - 1.3.1 routine tasks; e.g., daily, weekly, monthly, yearly
    - 1.3.2 non-routine tasks; e.g., emergencies
    - 1.3.3 tasks requiring personal judgement
    - 1.3.4 tasks requiring approval of a supervisor
- 2. analyze personal performance in relation to established standards**
  - 2.1 evaluate application of competencies developed in related CTS courses
  - 2.2 evaluate standards of performance in terms of:
    - 2.2.1 quality of work
    - 2.2.2 quantity of work
  - 2.3 evaluate adherence to workplace policies and procedures related to health and safety
  - 2.4 evaluate the work environment in terms of:
    - 2.4.1 location
    - 2.4.2 floor plan of work area
    - 2.4.3 analysis of workflow patterns

2.5 evaluate a professional in a related occupation in terms of:

2.5.1 training and certification

2.5.2 interpersonal skills

2.5.3 technical skills

2.5.4 professional ethics

**3. demonstrate basic competencies**

3.1 demonstrate fundamental skills to:

3.1.1 communicate

3.1.2 manage information

3.1.3 use numbers

3.1.4 think and solve problems

3.2 demonstrate personal management skills to:

3.2.1 demonstrate positive attitudes and behaviours

3.2.2 be responsible

3.2.3 be adaptable

3.2.4 learn continuously

3.2.5 work safely

3.3 demonstrate teamwork skills to:

3.3.1 work with others

3.3.2 participate in projects and tasks

## **COURSE CMA3480: CMA PRACTICUM C**

**Level:** First Period Apprenticeship

**Prerequisite:** None

**Description:** Students, on the work site, continue to develop and refine those competencies developed in related Career and Technology Studies (CTS) occupational areas, previous practicums and other experiences.

**Parameters:** This course should be accessed only by students continuing to work toward attaining a recognized credential offered by an agency external to the school. Practicum courses extend the competencies developed in related CTS occupational areas. The practicum courses may not be delivered as stand-alone courses and may not be combined with core courses. This course may not be used in conjunction with Registered Apprenticeship Program courses. This practicum course may be delivered on- or off-campus. Instruction must be delivered by a qualified teacher with journeyperson certification or an experienced professional with journeyperson certification, who is under the supervision of the qualified teacher; both must be authorized to supervise trainees for the external credential.

**Outcomes:** The student will:

- 1. perform assigned tasks and responsibilities efficiently and effectively, as required by the agency granting credentials**
  - 1.1 identify regulations and regulatory bodies related to the credential
  - 1.2 describe personal roles and responsibilities, including:
    - 1.2.1 key responsibilities
    - 1.2.2 support functions/responsibilities
    - 1.2.3 code of ethics
  - 1.3 describe personal work responsibilities and categorize them as:
    - 1.3.1 routine tasks; e.g., daily, weekly, monthly, yearly
    - 1.3.2 non-routine tasks; e.g., emergencies
    - 1.3.3 tasks requiring personal judgement
    - 1.3.4 tasks requiring approval of a supervisor
- 2. analyze personal performance in relation to established standards**
  - 2.1 evaluate application of competencies developed in related CTS courses
  - 2.2 evaluate standards of performance in terms of:
    - 2.2.1 quality of work
    - 2.2.2 quantity of work
  - 2.3 evaluate adherence to workplace policies and procedures related to health and safety
  - 2.4 evaluate the work environment in terms of:
    - 2.4.1 location
    - 2.4.2 floor plan of work area
    - 2.4.3 analysis of workflow patterns

2.5 evaluate a professional in a related occupation in terms of:

2.5.1 training and certification

2.5.2 interpersonal skills

2.5.3 technical skills

2.5.4 professional ethics

**3. demonstrate basic competencies**

3.1 demonstrate fundamental skills to:

3.1.1 communicate

3.1.2 manage information

3.1.3 use numbers

3.1.4 think and solve problems

3.2 demonstrate personal management skills to:

3.2.1 demonstrate positive attitudes and behaviours

3.2.2 be responsible

3.2.3 be adaptable

3.2.4 learn continuously

3.2.5 work safely

3.3 demonstrate teamwork skills to:

3.3.1 work with others

3.3.2 participate in projects and tasks



## **COURSE CMA3485: CMA PRACTICUM D**

**Level:** First Period Apprenticeship

**Prerequisite:** None

**Description:** Students, on the work site, continue to develop and refine those competencies developed in related Career and Technology Studies (CTS) occupational areas, previous practicums and other experiences.

**Parameters:** This course should be accessed only by students continuing to work toward attaining a recognized credential offered by an agency external to the school. Practicum courses extend the competencies developed in related CTS occupational areas. The practicum courses may not be delivered as stand-alone courses and may not be combined with core courses. This course may not be used in conjunction with Registered Apprenticeship Program courses. This practicum course may be delivered on- or off-campus. Instruction must be delivered by a qualified teacher with journeyperson certification or an experienced professional with journeyperson certification, who is under the supervision of the qualified teacher; both must be authorized to supervise trainees for the external credential.

**Outcomes:** The student will:

- 1. perform assigned tasks and responsibilities efficiently and effectively, as required by the agency granting credentials**
  - 1.1 identify regulations and regulatory bodies related to the credential
  - 1.2 describe personal roles and responsibilities, including:
    - 1.2.1 key responsibilities
    - 1.2.2 support functions/responsibilities
    - 1.2.3 code of ethics
  - 1.3 describe personal work responsibilities and categorize them as:
    - 1.3.1 routine tasks; e.g., daily, weekly, monthly, yearly
    - 1.3.2 non-routine tasks; e.g., emergencies
    - 1.3.3 tasks requiring personal judgement
    - 1.3.4 tasks requiring approval of a supervisor
- 2. analyze personal performance in relation to established standards**
  - 2.1 evaluate application of competencies developed in related CTS courses
  - 2.2 evaluate standards of performance in terms of:
    - 2.2.1 quality of work
    - 2.2.2 quantity of work
  - 2.3 evaluate adherence to workplace policies and procedures related to health and safety
  - 2.4 evaluate the work environment in terms of:
    - 2.4.1 location
    - 2.4.2 floor plan of work area
    - 2.4.3 analysis of workflow patterns

2.5 evaluate a professional in a related occupation in terms of:

2.5.1 training and certification

2.5.2 interpersonal skills

2.5.3 technical skills

2.5.4 professional ethics

**3. demonstrate basic competencies**

3.1 demonstrate fundamental skills to:

3.1.1 communicate

3.1.2 manage information

3.1.3 use numbers

3.1.4 think and solve problems

3.2 demonstrate personal management skills to:

3.2.1 demonstrate positive attitudes and behaviours

3.2.2 be responsible

3.2.3 be adaptable

3.2.4 learn continuously

3.2.5 work safely

3.3 demonstrate teamwork skills to:

3.3.1 work with others

3.3.2 participate in projects and tasks

## **COURSE CMA3900: APPRENTICESHIP SAFETY**

<b>Level:</b>	First Period Apprenticeship
<b>Prerequisite:</b>	None
<b>Description:</b>	Students develop knowledge, skills and attitudes in the practice of workshop health and safety, communication and career planning.
<b>Parameters:</b>	Access to a materials work centre and to instruction from an individual with specialized training in occupational health and safety (and understanding of the cabinet construction industry) and/or a cabinetmaker.
<b>ILM Resources:</b>	Safety Legislation, Regulations and Industry Policy in the Trades 650101a; Climbing, Lifting, Rigging and Hoisting 650101b; Hazardous Materials and Fire Protection 650101c; Introduction to Trades Training 360101a; The Cabinetmaking Trade 360101b; Trade Safety – Part A 360101cA; Trade Safety – Part B 360101cB; Occupational Health and Safety and Workplace Hazardous Materials Information System (WHMIS) 360101d; Safety Committees, Safety Inspections and Industrial Health Hazards 360101e
<b>Note:</b>	This course may promote discussions around sensitive topics (e.g., injury and death) in the context of student safety with respect to workplace hazards.

**Outcomes:** The student will:

- 1. describe legislation, regulations and practices intended to ensure a safe workplace in the cabinetmaker apprenticeship trade**
  - 1.1 demonstrate the ability to apply the *Occupational Health and Safety Act (OHS), Regulation and Code*, as well as the changes from Bill C-45
  - 1.2 explain the core requirements applicable to all industries, including:
    - 1.2.1 engineering controls
    - 1.2.2 administrative controls
    - 1.2.3 personal protective equipment (PPE)
  - 1.3 demonstrate an understanding of the 26 parts of the OHS code requirements applicable to all industries
  - 1.4 demonstrate an understanding of the 12 parts of the OHS code requirements applicable to specific industries and activities
  - 1.5 demonstrate an understanding of the 11 OHS Code Schedules that the Explanation Guide does not address
  - 1.6 explain the role of the employer and employee in regards to occupational health and safety legislation, including:
    - 1.6.1 employer responsibilities (OHS Regulations)
    - 1.6.2 employee responsibilities (OHS Regulations)
    - 1.6.3 Workplace Hazardous Materials Information Systems (WHMIS)
    - 1.6.4 fire regulations

- 1.6.5 Workers' Compensation Board (WCB)
- 1.6.6 related advisory bodies and agencies; e.g., The Alberta Construction Safety Association (ACSA), The Construction Owners Association of Alberta (COAA), The Occupational Health and Safety Council, Work Safe Alberta, The Safety Codes Council
- 1.7 explain industry practices for hazard assessment and control procedures in four main hazard categories, including:
  - 1.7.1 biological
  - 1.7.2 chemical
  - 1.7.3 ergonomic
  - 1.7.4 physical hazards
- 1.8 identify and describe hazard assessment tools that both employee and employer must use in assessing and controlling work-site hazards, including:
  - 1.8.1 work-site hazard identification and assessment
  - 1.8.2 health and safety plan
  - 1.8.3 joint work-site health and safety committee
  - 1.8.4 emergency response plans
  - 1.8.5 first-aid and incident reports
- 1.9 identify and describe employer engineering controls that provide the highest level of worker protection, including:
  - 1.9.1 elimination
  - 1.9.2 substitution
  - 1.9.3 redesign
  - 1.9.4 isolation
  - 1.9.5 automation
- 1.10 identify and describe employer administrative controls that limit hazards to the lowest level possible, including:
  - 1.10.1 safe work practices
  - 1.10.2 job procedures, policies, rules
  - 1.10.3 work/rest schedules to reduce exposure
  - 1.10.4 limiting hours of work
  - 1.10.5 scheduling hazardous work during non-peak times
  - 1.10.6 utilizing optional methods
- 1.11 describe the responsibilities of workers and employers to apply emergency procedures, including:
  - 1.11.1 emergency response plans
  - 1.11.2 first aid
- 1.12 describe positive tradesperson attitudes with respect to legal responsibilities for all workers, including:
  - 1.12.1 housekeeping
  - 1.12.2 lighting
  - 1.12.3 personal protective equipment (PPE)
  - 1.12.4 emergency procedures
- 1.13 describe the roles and responsibilities of employers and employees with respect to the selection and use of personal protective equipment (PPE), including:
  - 1.13.1 eye protection; e.g., class 1 (spectacles), class 2 (goggles), class 3 (welding helmets), class 4 (welding hand shields), class 5 (hoods), class 6 (face shields), class 7 (respirator face pieces)
  - 1.13.2 flame resistant clothing

- 1.13.3 foot protection; e.g., category 1, 2 or 3 footwear requirements
  - 1.13.4 head protection; e.g., class G (general), class E (electrical), class C (conducting)
  - 1.13.5 hearing protection; e.g., earplugs or earmuffs
  - 1.13.6 life jackets and personal floatation devices (PFDs)
  - 1.13.7 limb and body protection
  - 1.13.8 respiratory protective equipment; e.g., particulate filters; chemical cartridges or canisters; airline respirators, hoods, helmets and suits; self-contained breathing apparatus (SCBA)
  - 1.13.9 a combination of any of the above
- 2. describe the use of personal protective equipment (PPE) and safe practices for climbing, lifting, rigging and hoisting in the cabinetmaker apprenticeship trade**
- 2.1 select, use and maintain specialized PPE for climbing, lifting and loading, including:
    - 2.1.1 full body harness
    - 2.1.2 body belt
    - 2.1.3 ladders
    - 2.1.4 scaffold systems
    - 2.1.5 lifting and moving equipment
    - 2.1.6 PPE for lifting
    - 2.1.7 materials handling equipment; e.g., forklift, four wheel dolly, chain hoist, overhead crane
  - 2.2 describe manual lifting procedures using correct body mechanics, including:
    - 2.2.1 back safety
    - 2.2.2 general procedures for lifting
    - 2.2.3 employer and employee preventative actions to prevent back injuries
  - 2.3 describe rigging hardware and the safety factor associated with:
    - 2.3.1 wire rope slings
    - 2.3.2 synthetic fibre web slings
    - 2.3.3 chain slings
    - 2.3.4 rigging hardware inspection
  - 2.4 select the correct equipment for rigging typical loads, including:
    - 2.4.1 eyebolts
    - 2.4.2 shackles
    - 2.4.3 rings and links
    - 2.4.4 hooks
    - 2.4.5 swivels
    - 2.4.6 spreader bars and equalization beams
    - 2.4.7 blocks
    - 2.4.8 sheaves
    - 2.4.9 turnbuckles
  - 2.5 describe hoisting and load-moving procedures
- 3. describe the safety practices for hazardous materials and fire protection in the cabinetmaker apprenticeship trade**
- 3.1 describe the roles, responsibilities features and practices related to the Workplace Hazardous Materials Information System (WHMIS) program, including:
    - 3.1.1 suppliers', employers' and employees' responsibilities
    - 3.1.2 WHMIS classifications
    - 3.1.3 health effects from exposure to chemicals

- 3.2 describe the three key elements of WHMIS, including:
  - 3.2.1 worker education
  - 3.2.2 supplier and workplace product labeling
  - 3.2.3 material safety data sheets
- 3.3 describe handling, storage and transportation procedures when dealing with hazardous material, including:
  - 3.3.1 handling, storing and transporting flammable liquids
  - 3.3.2 handling, storing and transporting compressed gas
  - 3.3.3 storage of incompatible materials
- 3.4 describe safe venting procedures when working with hazardous materials, including:
  - 3.4.1 mechanical general ventilation
  - 3.4.2 local ventilation
  - 3.4.3 portable smoke extractor
  - 3.4.4 working in a confined space
- 3.5 describe fire hazards, classes, procedures and equipment related to fire protection, including:
  - 3.5.1 elements of a fire
  - 3.5.2 classes of fires
  - 3.5.3 fire extinguisher labels
  - 3.5.4 extinguishing small fires
  - 3.5.5 the PASS method
- 4. demonstrate communication skills and workshop safety as they pertain to occupational health and safety standards**
  - 4.1 communicate trade-related information using standard terms for components and operations, including:
    - 4.1.1 verbal, visual, written and listening communication skills
    - 4.1.2 personal appearance
    - 4.1.3 business appearance
    - 4.1.4 suppliers and sales representatives
    - 4.1.5 customers
    - 4.1.6 tradespeople
  - 4.2 identify key areas of responsibility that an employee has in regards to shop and trade safety, including:
    - 4.2.1 employee responsibilities
    - 4.2.2 compressed air
    - 4.2.3 employer responsibilities
    - 4.2.4 hazardous materials, dangerous goods and controlled products
  - 4.3 explain the correct use of fire extinguishers and fire-prevention techniques
- 5. understand the role of tradespeople, employers, local apprenticeship committees, the provincial apprenticeship committee and the Alberta Apprenticeship and Industry Training Board**
  - 5.1 describe the role of training institutions and regulatory bodies, and identify resources, people and facilities designed to promote apprenticeship success
  - 5.2 describe acceptable standards of attendance and classroom and shop behaviour
  - 5.3 describe the role of, and the means of communicating with, the apprenticeship liaison officer
  - 5.4 describe appropriate available study resources and methods

- 6. demonstrate an understanding the cabinetmaker apprenticeship trade and the apprenticeship opportunities that exist by creating a personal career portfolio**
  - 6.1 describe the history of the cabinetmaker trade as it developed from ancient to modern times
  - 6.2 describe current trends in the cabinetmaker trade, including computer numerically controlled (CNC) machinery
  - 6.3 describe and define the scope of the journey person cabinetmaker's duties, including:
    - 6.3.1 reading and interpreting plans and specifications
    - 6.3.2 rendering shop drawings and cutting lists
    - 6.3.3 planning production
    - 6.3.4 preparing material
    - 6.3.5 assembly, finishing, installation and maintenance
  - 6.4 describe the terms as they apply to the cabinetmaker trade:
    - 6.4.1 commercial
    - 6.4.2 institutional
    - 6.4.3 furniture
    - 6.4.4 residential
  - 6.5 define general trade-related terminology
  - 6.6 refine and present a personal career portfolio, showing evidence of strengths and competencies, including:
    - 6.6.1 application completion
    - 6.6.2 cover letter
    - 6.6.3 resumé including references
  - 6.7 demonstrate knowledge about workplace requirements, rights and responsibilities and relate this knowledge to personal career and employment expectations
  - 6.8 outline the educational requirements to move into the cabinetmaker apprenticeship trade area as well as post-secondary requirements and opportunities, including:
    - 6.8.1 conducting successful employment searches
    - 6.8.2 communicating in the language in which business is conducted
    - 6.8.3 preparing a personal employment search portfolio
    - 6.8.4 using technologies, tools and information systems appropriately for job preparation
- 7. demonstrate basic competencies**
  - 7.1 demonstrate fundamental skills to:
    - 7.1.1 communicate
    - 7.1.2 manage information
    - 7.1.3 use numbers
    - 7.1.4 think and solve problems
  - 7.2 demonstrate personal management skills to:
    - 7.2.1 demonstrate positive attitudes and behaviours
    - 7.2.2 be responsible
    - 7.2.3 be adaptable
    - 7.2.4 learn continuously
    - 7.2.5 work safely
  - 7.3 demonstrate teamwork skills to:
    - 7.3.1 work with others
    - 7.3.2 participate in projects and tasks
- 8. create a transitional strategy to accommodate personal changes and build personal values**
  - 8.1 identify short-term and long-term goals
  - 8.2 identify steps to achieve goals