NL Curriculum Standard

Plan of Training

Cabinetmaker

Government of Newfoundland and Labrador
Department of Immigration, Skills and Labour
Apprenticeship and Trades Certification Division

March 2012

PLAN OF TRAINING

Cabinetmaker

March 2012

Newfoundland Labrador

Government of Newfoundland and Labrador
Department of Advanced Education and Skills
Apprenticeship and Trades Certification Division

Approved by:

Chairperson, Provincial Apprenticeship and Certification Board

Date: March 13, 2012

Preface

This curriculum standard is aligned with the 2012 edition of the National Occupational Analysis for the Cabinetmaker trade. It describes the curriculum content for the Cabinetmaker apprenticeship training program.

Acknowledgements

The Provincial Trade Advisory Committee (PTAC), industry representatives, instructors and apprenticeship staff provided valuable input to the development of this provincial plan of training. Without their dedication to quality apprenticeship training, this document could not have been produced.

We offer a sincere thank you.

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B. NOA Comparison Chart

NOA 2012 Tasks		2012 POT	
Task 1 – Maintains tools and equipment			
1.01	Maintains safe work environment.	TS1510	Occupational health and safety
		TS1520	WHMIS
		AK1130	Construction safety
1.02	Uses personal protective equipment (PPE) and safety equipment.	AK1130	Construction safety
Task 2 – Organizes Work			
2.01	Maintains hand, portable power and pneumatic tools and equipment.	AK1200	Hand Tools
		AK1230	Portable power tools
		AK1240	Common stationary equipment
2.02	Maintains stationary power tools.	AK1240	Common stationary equipment
		AK1270	Specialty stationary equipment
2.03	Maintains finishing equipment.	AK1301	Wood finishing I
Task 3 – Organizes Work			
3.01	Interprets prints and drawings	AK1100	Blueprint I – basic
		AK1120	Blueprint II – intermediate
		AK1290	Basic casework
3.02	Plans project	AK1290	Basic casework
		AK1330	Installation procedures
3.03	Performs basic design	AK1100	Blueprint I – basic
		AK1220	Materials
		AK1290	Basic casework
		AK2202	Advanced casework and furniture design
3.04	Performs layout of cabinets, furniture and architectural millwork	AK1220	Materials
		AK1290	Basic casework
		AK1330	Installation procedures
		AK2100	Blueprint III (advanced)
Task 4 – Performs Routine Work Practices			
4.01	Handles materials, supplies and products	AK1290	Basic Casework
4.02	Fabricates jigs and templates		
4.03	Builds prototypes	All Level 1 Core Curriculum Courses	
4.04	Dry fits components	AK1200	Hand Tools
		AK1290	Basic Casework
		SP2330	Quality Assurance / Quality Control
4.05	Selects hardware	AK1290	Basic Casework
4.06	Selects adhesives and fasteners	AK1210	Fasteners and Adhesives
Task 5 – Machines Components Using Stationary and Portable Power Tools			
5.01	Breaks out solid wood	AK1220	Materials

NOA 2012 Tasks		2012 POT	
		AK1240	Common Stationary Equipment
		AK1290	Basic Casework
5.02	Dresses solid wood	AK1220	Materials
		AK1240	Common Stationary Equipment
5.03	Shapes solid wood	AK1220	Materials
		AK1230	Portable Power Tools
		AK1270	Specialty Stationary Equipment
		AK1290	Basic Casework
5.04	Breaks out sheet materials	AK1220	Materials
		AK1240	Common Stationary Equipment
		AK1290	Basic Casework
5.05	Machines sheet materials	AK1220	Materials
		AK1230	Portable Power Tools
		AK1240	Common Stationary Equipment
		AK1290	Basic Casework
5.06	Machines joints	AK1250	Joint Fabrication and Assembly
5.07	Performs preliminary sanding	AK1240	Common Stationary Equipment
		AK1301	Wood finishing I
Task 6 – Machines Components Using Automated Equipment			
6.01	Sets up automated equipment	AK1282	High Production Equipment
6.02	Operates automated equipment		
Task 7 – Creates Curved Components Using Wood and Composite Materials			
7.01	Builds forms	AK2202	Advanced Casework and Furniture Design
7.02	Performs curved laminating	AK1260	Laminating
7.03	Steam-forms wood	AK1260	Laminating
		AK2202	Advanced Casework and Furniture Design
Task 8 – Laminates Wood and Composite Materials			
8.01	Arranges materials for laminating	AK1220	Materials
		AK1260	Laminating
8.02	Applies adhesive for laminating	AK1210	Fasteners and Adhesives

NOA 2012 Tasks		2012 POT	
8.03	Clamps pieces together	AK1260	Laminating
Task 9 – Applies Veneers			
9.01	Selects Veneer	AK1220	Materials
9.02	Prepares veneer and substrate		
9.03	Adheres veneers to substrates	AK1210	Fasteners and Adhesives
		AK1260	Laminating
		AK2202	Advanced Casework and Furniture Design
9.04	Performs final clean-up of veneered panels		
Task 10 – Applies Laminate sheets			
10.01	Selects laminate sheets	AK1220 AK1260	Materials Laminating
10.02	Prepares laminate sheets and substrate		
10.03	Adheres laminate sheets to substrate	AK1210	Fasteners and Adhesives
		AK1260	Laminating
10.04	Performs final clean-up of laminated sheets		
Task 11 – Assembles Cabinets and Furniture			
11.01	Assembles cabinet components	AK1210	Fasteners and Adhesives
		AK1290	Basic Casework
11.02	Assembles furniture components.	AK1250 AK1290 AK2202	Joint Fabrication and Assembly Basic Casework Advanced Casework and Furniture Design
11.03	Assembles wood components		
11.04	Combines components into final assemblies	AK1210	Fasteners and Adhesives
Task 12 – Assembles Architectural Millwork Products			
12.01	Assembles architectural millwork components in the shop	AK1210	Fasteners and Adhesives
		AK1250	Joint Fabrication and Assembly
		AK1290	Basic Casework
12.02	Assembles architectural fixtures in the shop	AK1210	Fasteners and Adhesives
		AK2202	Advanced Casework and Furniture Design
Task 13 – Prepares Surface for Finishing			
13.01	Repairs minor imperfections	AK1220	Materials
		AK1301	Wood Finishing I
13.02	Performs final sanding of surfaces	AK1200	Hand Tools
		AK1220	Materials
		AK1301	Wood Finishing I
Task 14 – Finishes Wood Products			
14.01	Prepares finishing materials	TS1520	WHMIS

NOA 2012 Tasks		2012 POT	
		AK1301	Wood Finishing I
14.02	Applies finishing material manually	AK1302	Wood Finishing II
14.03	Sprays on finishing material		
Task 15 – Modifies Products to Site Conditions			
15.01	Cuts access holes on site	AK1200	Hand Tools
		AK1230	Portable Power Tools
		AK1290	Basic Casework
		AK1330	Installation Procedures
15.02	Scribes products to fit on site	AK1200	Hand Tools
		AK1230	Portable Power Tools
		AK1330	Installation Procedures
Task 16 – Installs Cabinets and Countertops			
16.01	Performs final on-site assembly and fastening of cabinets and countertops	AK1100	Blueprint I – Basic
		AK1301	Wood Finishing I
		AK1330	Installation Procedures
		AK1220	Materials
		AK1230	Portable Power Tools
16.02	Finalizes installation of cabinets and countertops	AK1200	Hand Tools
		AK1330	Installation Procedures
Task 17 – Installs Architectural Millwork Products and Moldings			
17.01	Performs final on site assembly and fastening of architectural millwork products	AK1210	Fasteners and Adhesives
		AK1250	Joint Fabrication and Assembly
17.02	Installs Moldings		
17.03	Finalizes installation of architectural millwork products	AK1290	Basic Casework
		AK2202	Advanced Casework and Furniture Design
Task 18 – Builds Stairs and Balustrades			
18.01	Lays out stair and balustrade components	AK1200	Hand Tools
		AK1310	Stairs
		AK1320	Industry Codes and Practices
18.02	Machines stair and balustrade components	AK1240	Common Stationary Equipment
		AK1290	Basic Casework
		AK2202	Advanced Casework and Furniture Design
18.03	Assembles stairs and balustrades	AK1200	Hand Tools
		AK1210	Fasteners and Adhesives
		AK1310	Stairs
18.04	Installs stairs and balustrades	AK1200	Hand Tools

NOA 2012 Tasks		2012 POT	
		AK1210	Fasteners and Adhesives
		AK1310	Stairs
Task 19 – Works With Solid Surface Material and custom countertops			
19.01	Breaks out materials	AK2202	Advanced Casework and Furniture Design
19.02	Fabricates solid surface material		
19.03	Installs solid surface material		
Task 20 – Creates Decorative Woodwork			
20.01	Performs marquetry	These sub-tasks are not common core, and are not covered in the NL curriculum	
20.02	Performs carving		
20.03	Performs woodturning	AK1260	Laminating
Task 21 – Restores Woodwork			
21.01	Repairs woodwork for restoration purposes	AK1220	Materials
		AK1250	Joint Fabrication and Assembly
		AK1301	Wood Finishing I
		AK2202	Advanced Casework and Furniture Design
21.02	Refinishes woodwork	AK1301	Wood Finishing I
		AK1302	Wood Finishing II

C. Program Structure

For each and every course, a formal assessment is required for which 70% is the pass mark. A mark of 70% must be attained in both the theory examination and the practical project assignment, where applicable as documented on an official transcript.

The order of course delivery within each Level can be determined by the educational agency, as long as pre-requisite conditions are satisfied.

Upon completion of an entry level program, individuals may be required to complete other certifications (employer or job site specific) in order to gain employment.

Level 1				
Course No.	**AACS No.**	**Course Name**	**Hours**	**Pre-Requisite(s)**
TS1510		OH&S	6	None
TS1520	-	WHMIS	6	None
TS1530	-	Standard First Aid	14	None
AK1130	-	Construction Safety	40	TS1520, TS1530
AK1100	-	Blueprint I - Basic	75	None
AK1200	-	Hand Tools	45	AK1130
AK1210	-	Fasteners and Adhesives	30	AK1200
AK1220	-	Materials	45	AK1130
AK1230	-	Portable Power Tools	45	AK1200
AK1240	-	Common Stationary Equipment	60	AK1230
AK1250	-	Joint Fabrication and Assembly	45	AK1240
AK1260	-	Laminating	45	AK1250

Level 1				
Course No.	**AACS No.**	**Course Name**	**Hours**	**Pre-Requisite(s)**
AK1290	-	Basic Casework	75	AK1120
AK1301	-	Wood Finishing I	80	AK1230
AK1120	-	Blueprint II (Intermediate)	60	AK1100
AK1320	-	Industry Codes and Practices	45	AK1130
AK1330	-	Installation Procedures	45	AK1320, AK1290
AM1000	-	Introduction to Essential Skills	9	None
AM1101	-	Math Essentials*	42	None
AM1121	-	Cabinetmaker Math Fundamentals	42	AM1101
CM2161	-	Communication Essentials	36	None
SD1761	-	Workplace Essentials	24	None
MC1062	-	Computer Essentials	15	None
AP1102	-	Introduction to Apprenticeship	12	None
		Total Hours	**941**	

***A student who can meet the mathematics requirement through an ACUPLACER® test may be exempted from AM1101 - Math Essentials. Please check with your training institution**.

Required Work Experience

Level 2				
Course No.	**AACS No.**	**Course Name**	**Hours**	**Pre-Requisite(s)**
AK1270	-	Specialty Stationary Equipment	60	AK1260
AK1302	-	Wood Finishing II	50	AK1301
AK1310	-	Stairs	90	AK1120
AK2100	-	Blueprint III (Advanced)	40	AK1120
		Total Hours	**240**	

Required Work Experience

Level 3				
Course No.	**AACS No.**	**Course Name**	**Hours**	**Pre-Requisite(s)**
AK1282	-	High Production Equipment	60	AK1270
AK2102	-	Blueprint IV (CAD)	60	AK2100
AK2202	-	Advanced Casework and Furniture Design	120	AK1290, AK2100
		Total Hours	**240**	

Required Work Experience

Total Course Credit Hours	**1421**

Level 1

TS1510 Occupational Health and Safety

Learning Outcomes:

- Demonstrate knowledge of interpreting the Occupational Health and Safety Act, laws and regulations.
- Demonstrate knowledge of understanding the designated responsibilities within the laws and regulations such as the right to refuse dangerous work; and the importance of reporting accidents.
- Demonstrate knowledge of how to prevent accidents and illnesses.
- Demonstrate knowledge of how to improve health and safety conditions in the workplace.

Duration: 6 Hours

Pre-Requisite(s): None

Objectives and Content:

1. Interpret the Occupational Health and Safety Act laws and regulations.
   i. explain the scope of the act
      - application of the act
      - Federal/Provincial jurisdictions
      - Canada Labour Code
      - rules and regulations
      - private home application
      - conformity of the Crown by the Act

2. Explain responsibilities under the Act and Regulations.
   i. duties of employer, owner, contractors, sub-contractors, employees, and suppliers

3. Explain the purpose of joint health and safety committees.
   i. formation of committee
   ii. functions of committee
   iii. legislated rights
   iv. health and safety representation
   v. reporting endangerment to health
   vi. appropriate remedial action
   vii. investigation of endangerment
   viii. committee recommendation
   ix. employer's responsibility in taking remedial action

4. Examine right to refuse dangerous work.
   i. reasonable grounds for refusal
   ii. reporting endangerment to health
   iii. appropriate remedial action
   iv. investigation of endangerment
   v. committee recommendation
   vi. employer's responsibility to take appropriate remedial action
   vii. action taken when employee does not have reasonable grounds for refusing dangerous work
   viii. employee's rights
   ix. assigning another employee to perform duties
   x. temporary reassignment of employee to perform other duties
   xi. collective agreement influences
   xii. wages and benefits

5. State examples of work situations where one might refuse work.

6. Describe discriminatory action.
   i. definition
   ii. filing a complaint procedure
   iii. allocated period of time a complaint can be filed with the Commission
   iv. duties of an arbitrator under the Labour Relations Act
   v. order in writing inclusion
   vi. report to commission Allocated period of time to request Arbitrator to deal with the matter of the request
   vii. notice of application
   viii. failure to comply with the terms of an order
   ix. order filed in the court

7. Explain duties of commission officers.
   i. powers and duties of officers
   ii. procedure for examinations and inspections
   iii. orders given by officers orally or in writing
   iv. specifications of an order given by an officer to owner of the place of employment, employer, contractor, sub-contractor, employee, or supplier
   v. service of an order
   vi. prohibition of persons towards an officer in the exercise of his/her power or duties
   vii. rescinding of an order
   viii. posting a copy of the order
   ix. illegal removal of an order

8. Interpret appeals of others.
   i. allocated period of time for appeal of an order
   ii. person who may appeal order
   iii. action taken by Commission when person involved does not comply with the order
   iv. enforcement of the order
   v. notice of application
   vi. rules of court

9. Explain the process for reporting of accidents.
   i. application of act
   ii. report procedure
   iii. reporting notification of injury
   iv. reporting accidental explosion or exposure
   v. posting of act and regulations

Practical Requirements:

1. Conduct an interview with someone in your occupation on two or more aspects of the act and report results.

2. Conduct a safety inspection of shop area.

TS1520 Workplace Hazardous Materials Information System (WHMIS)

Learning Outcomes:

- Demonstrate knowledge of interpreting and applying the Workplace Hazardous Materials Information System (WHMIS) Regulation under the Occupational Health and Safety Act.

Duration: 6 Hours

Pre-Requisite(s): None

Objectives and Content:

1. Define WHMIS safety.
   - i. rational and key elements
   - ii. history and development of WHMIS
   - iii. WHMIS legislation
   - iv. WHMIS implementation program
   - v. definitions of legal and technical terms

2. Examine hazard identification and ingredient disclosure.
   - i. prohibited, restricted and controlled products
   - ii. classification and the application of WHMIS information requirements
   - iii. responsibilities for classification
     - the supplier
     - the employer
     - the worker - Classification: rules and criteria
     - information on classification
     - classes, divisions and subdivision in WHMIS
     - general rules for classification
     - class A - compressed gases
     - class B - flammable and combustible materials
     - class C - oxidizing material
     - class D - poisonous and infectious material
     - class E - corrosive material
     - class F - dangerously reactive material
   - iv. products excluded from the application of WHMIS legislation
     - consumer products
     - explosives
     - cosmetics, drugs, foods and devices
     - pest control products
     - radioactive prescribed substances
     - wood or products made of wood
     - manufactured articles

- tobacco or products of tobacco
- hazardous wastes
- products handled or transported pursuant to the Transportation of Dangerous Goods (TDG) Act

v. comparison of classification systems - WHMIS and TDG
vi. general comparison of classification categories
vii. detailed comparison of classified criteria

3. Explain labeling and other forms of warning.
   i. definition of a WHMIS label
      - supplier label
      - workplace label
      - other means of identification
   ii. responsibility for labels
      - supplier responsibility
      - employer responsibility
      - worker responsibility
   iii. introduce label content, design and location
      - supplier labels
      - workplace labels
      - other means of identification

4. Introduce material safety data sheets (MSDS).
   i. definition of a material safety data sheet
   ii. purpose of the data sheet
   iii. responsibility for the production and availability of data sheets
      - supplier responsibility
      - employer responsibility
      - workers responsibility

Practical Requirements:

1. Locate WHMIS label and interpret the information displayed.

2. Locate a MSDS sheet for a product used in the workplace and determine what personal protective equipment and other precautions are required when handling this product.

TS1530 Standard First Aid

Learning Outcomes:

- Demonstrate knowledge of recognizing situations requiring emergency action.
- Demonstrate knowledge of making appropriate decisions concerning first aid.

Duration: 14 Hours

Pre-Requisite(s): None

Practical Requirements:

1. Complete a **St. John Ambulance or Canadian Red Cross** Standard First Aid Certificate course.

AK1130 Construction Safety

Learning Outcomes:

- Demonstrate knowledge of safety regulations applied to industry, to the trade, to employers and employees.
- Demonstrate knowledge of hazards, safe work practices and good housekeeping on the job site and in the workshop environment.
- Demonstrate knowledge of personal protective safety equipment and fall arrest systems, and their care and use.

Duration: 40 Hours

Pre-Requisite(s): TS1520
TS1530

Objectives and Content:

Personal Protective Clothing and Equipment

1. Identify personal protective clothing and equipment.
   i. hearing
   ii. eye
   iii. respiratory
   iv. body
   v. foot
   vi. hand
   vii. head

2. Identify hearing protection, their types, applications and use.
   i. muffs
   ii. plugs
   iii. combination
   iv. decibels (sound measurement)

3. Identify safety glasses, their types, applications and use.
   i. protection from liquids
   ii. protection from solid objects
   iii. protection from hot objects
   iv. protection from compressed air

4. Identify respiratory protection, their types, applications and use.
   i. respiratory system (inhalation)
   ii. air-purifying
   iii. self-contained breathing apparatus

5. Identify body coverings, their types, applications and use.
   i. clothing material (natural/synthetic)
   ii. coveralls
   iii. skin protection (corrosives, etc.)

6. Identify foot protection, their types, applications and use.
   i. toe
   ii. arch
   iii. puncture
   iv. ankle

7. Identify hand protection, their types, applications and use.
   i. temperature
   ii. abrasions
   iii. vibration
   iv. chemical

8. Identify head protection, their types, applications and use.
   i. hard hat classification
   ii. liners
   iii. chin straps

9. Identify inspection and maintenance procedures for personal protective equipment.
   i. hearing
   ii. eye
   iii. respiratory
   iv. body
   v. foot
   vi. hand
   vii. head

Fall Protection

10. Identify types of fall prevention equipment and describe their use and care.
    i. arrest
    ii. restraint
    iii. prevention

11. Identify types of fall prevention systems and their use and care.
    i. guardrails system
    ii. floor opening protection
    iii. wall openings

Working Environments

12. Identify the hazards and precautions to be taken when working in a confined space.
    i. health hazards
    ii. oxygen deficiency/enrichment
    iii. explosive atmospheres
    iv. IDLH (immediately dangerous to life or health)
    v. emergency response
    vi. retrieval devices
    vii. monitoring equipment

13. Identify fire control equipment, its applications and procedures for use.
    i. fire extinguisher classification (A, B, C)
    ii. fire blankets

Industrial Health Hazards

14. Identify types of industrial health hazards.
    i. solid (dusts)
    ii. liquid
    iii. atmospheric
    iv. electrical
    v. ergonomics

15. Identify health hazards presented by building materials.
    i. wood preservatives
    ii. dusts
    iii. heavy metals
    iv. off-gassing
    v. fibers
    vi. asbestos
    vii. exotic woods

Practical Requirements:

1. Select and demonstrate the proper use of personal protective equipment.

AK1100 Blueprint 1 (Basic)

Learning Outcomes:

- Demonstrate knowledge of construction drawings, specifications, regulations and codes.

Duration: 75 Hours

Pre-Requisite(s): None

Objectives and Content:

Fundamentals of Construction Drawings

1. Identify the different types of drawings and describe their use.
   i. architectural
   ii. structural
   iii. mechanical
   iv. electrical
   v. shop drawings / work orders
   vi. manufacturers supplied drawings

2. Identify architectural specifications and describe their purpose and use.

3. Identify construction regulations, codes and standards.
   i. National Building Code
   ii. Newfoundland Labrador Construction Safety Association
   iii. Architectural Woodwork Manufacturers Association of Canada
   iv. Buildings Accessibility Act and Regulations

4. Describe the importance of specifications and their precedence over working drawings.

5. Describe the alphabet of lines.
   i. object
   ii. broken
   iii. extension
   iv. dimension
   v. centre
   vi. leader
   vii. break
   viii. cutting plane

6. Identify and describe blueprint symbols and abbreviations.

i. wall symbols
ii. exterior
iii. interior
iv. mechanical
v. masonry
vi. scale

Reading Construction Drawings

7. Identify and describe the use of types of drawings.
   i. elevation
   ii. floor
   iii. section
   iv. detail
   v. manufacturers

8. Identify and describe information on building plans.
   i. lines
   ii. symbols
   iii. dimensions
   iv. elevations
   v. plan views
   vi. abbreviations
   vii. design
   viii. window/door schedules
   ix. section views
   x. finish schedules
   xi. isometric
   xii. cabinets, casework and furniture details

9. Describe the use of information on elevation views.
   i. orientation
   ii. symbols
   iii. scale

Basic Sketching

10. Explain the purpose of sketching.
   i. communication
   ii. visualization
   iii. explaining details

11. Describe freehand sketching techniques.
   i. lines
   ii. proportion
   iii. circles

iv. irregular shapes

Practical Requirements:

1. Identify and interpret information contained in construction drawings.

2. Locate information from blueprints and drawings.

3. Read and interpret architectural drawings.
   i. floor
   ii. details
   iii. elevations
   iv. sections

4. Interpret specifications.
   i. manufacturing
   ii. tolerance
   iii. company standards books

5. Use codes, regulations and standards
   i. National Building Code
   ii. Canadian Standards Association standards
   iii. Architectural Woodwork Manufacturers Association of Canada
   iv. Buildings Accessibility Act and Regulations

6. Develop freehand sketches with regard to:
   i. details
   ii. joints
   iii. layouts

7. Produce shop drawings for a selected project.

AK1200 Hand Tools

Learning Outcomes:

- Demonstrate the use of hand tools.

Duration: 45 Hours

Pre-Requisite(s): AK1130

Objectives and Content:

1. Identify the main types of hand tools and describe their applications, accessories, care and use.
   i. measuring
   ii. layout
   iii. alignment
   iv. levels
   v. sanders
   vi. edge-cutters (hand planes & chisels)
   vii. saws
   viii. drilling and boring
   ix. clamps
   x. glue applicators
   xi. sharpeners and conditioners

2. Describe the procedures used to sharpen hand tools.

Practical Requirements:

1. Maintain hand tools and demonstrate sharpening procedures.

2. Demonstrate safe working procedures when using hand tools.

3. Demonstrate the storage of hand tools.

AK1210 Fasteners and Adhesives

Learning Outcomes:

- Demonstrate the ability to select and use fasteners and adhesives.

Duration: 30 Hours

Pre-Requisite(s): AK1200

Objectives and Content:

1. Identify the main types of fasteners and describe their characteristics, applications and procedures to install.
   i. general
   ii. nail
   iii. brads
   iv. screws
   v. biscuits
   vi. dowels
   vii. staples
   viii. wall inserts
   ix. special purpose
   x. knockdown hardware
   xi. tight joint fasteners
   xii. cabinet connectors
   xiii. angle brackets

2. Identify the various metals and coatings used in fasteners and explain their advantage.

3. Identify the main types of adhesives and describe their characteristics, applications and procedures to prepare and apply.
   i. hide glue
   ii. casein glue
   iii. standard and cross-linking polyvinyl resins
   iv. urea-resin
   v. resorcinol
   vi. epoxy
   vii. contact cements
   viii. hot-melts
   ix. mastics
   x. solvents

4. Identify and describe the most suitable adhesive for specific applications.
   i. shelf-life, pot-life
   ii. assembly times
   iii. moisture conditions, temperatures
   iv. undesirable staining of materials
   v. coloring of glue
   vi. type of material to be glued
   vii. moisture content

5. Describe how to store and maintain adhesives.

Practical Requirements:

1. Select appropriate, space and install fasteners for various tasks.

2. Select and apply glues and adhesives.

3. Mix glues and apply adhesives according to manufacturer's specifications using:
   i. brushes
   ii. rollers
   iii. bottles
   iv. glue spreaders
   v. glue injectors

4. Apply the required pressures to glue joints.

5. Square projects using clamps.

6. Glue up solid lumber.

7. Clean, maintain and store gluing tools and equipment.

8. Clean up excess glue from projects following a lay-up period.

AK1220 Materials

Learning Outcomes:

- demonstrate knowledge of the materials used in cabinetmaking.

Duration: 45 Hours

Pre-Requisite(s): AK1130

Objectives and Content:

1. Identify and classify the different types of solid wood common to the Cabinetmaker trade.
   i. hardwoods (deciduous)
      - white oak
      - American black walnut
      - elm
      - birch
      - beech
      - maple
      - oak
      - ash
      - walnut
      - mahogany
      - cherry
      - poplar

   ii. softwoods (coniferous)
      - basswood
      - pine
      - cedar
      - spruce
      - fir

2. Identify the geographic areas of growth for hard and softwoods.

3. Describe the different common methods of producing lumber:
   i. plain sawn/flat grained
   ii. quarter sawn/edge grained
   iii. rift sawn/rift grained

4. Describe the relative commercial values of lumber:
   i. costs
   ii. types

iii. sizes
iv. waste factor

5. Identify the structure and growth properties of wood

6. Describe the cell structure of wood and how different properties are affected by it.

7. Identify properties of common wood species.
   i. density
   ii. color
   iii. odor
   iv. strength
   v. hardness
   vi. aesthetics
   vii. stiffness
   viii. bending qualities
   ix. effects of light regarding discoloration

8. Identify the different types of wood grains:
   i. straight
   ii. irregular
   iii. curly
   iv. spiral
   v. interlocked
   vi. open and closed

9. Identify common grades and the criteria used for grading softwood and hardwood lumber.

10. Describe the common defects and flaws related to growth and machining.
    i. felling shakes
    ii. wind shakes
    iii. pitch pockets
    iv. knots
    v. stress
    vi. birds eyes
    vii. burls

11. Describe the nominal and actual dimensions of softwood and hardwood lumber.

12. Describe seasoning and storage processes in relation to:
    i. moisture content
    ii. equilibrium moisture content
    iii. relative humidity

13. Describe the method used to identify the moisture content in wood samples:

i. oven drying
ii. moisture meter

14. Describe the process for:
    i. air drying
    ii. kiln drying (types of kilns)

15. Describe flaws and defects related to improper drying and storage:
    i. case-hardening
    ii. checks
    iii. warpage
    iv. honeycomb
    v. stains (stickers, molds, etc.)
    vi. rot

16. Describe the procedures to calculate board, lineal and square feet.

17. Identify the different types of veneers used in industry:
    i. herring bone
    ii. slip match
    iii. book match (flat sliced)
    iv. diamond match
    v. quarter sliced
    vi. rift sliced
    vii. rotary cut
    viii. reconstituted

18. Describe the storage and handling of veneers.

19. Discuss relative commercial values of veneers by cost, type, size and waste factors.

20. Identify manufactured wood products.
    i. plywood (interior, exterior and specialty)
    ii. other core materials

21. Identify the core-types commonly used.
    i. veneer
    ii. lumber
    iii. particle board
    iv. oriented strand board
    v. fibre-board
    vi. combination
    vii. balanced construction (laminates, veneers, etc.)

22. Describe the advantages of core-type woods over solid woods.

23. Describe the manufacturing methods of face veneers.
    i. rotary
    ii. flat sliced

24. Describe the advantages and disadvantages of various composite core materials.
    i. particle-board
    ii. fibre-board
    iii. hard-board

25. Describe how different moisture-conditions affect composite core materials and storage.

26. Describe the use of sheet material.
    i. plastic
    ii. plastic laminated

27. Describe common sizes and types of solid surface materials.
    i. acrylic
    ii. polyester

28. Identify types of glass and describe their properties, thickness and use.
    i. float
    ii. tempered
    iii. laminated
    iv. wired

29. Describe the procedures used to cut glass, smooth and webering edges.

30. Describe installation requirements for glass and mirrors:
    i. setting and spacing blocks
    ii. stops and special tracks
    iii. hardware

31. Describe brass, stainless steel, chrome, copper and aluminum.
    i. use
        - bases
        - inlays
        - structural
        - facings
    ii. strength
    iii. surface treatment
    iv. types, sizes
    v. adhering properties to wood
    vi. methods of cutting

vii. finishes

32. Describe extruded mouldings, their types and applications.
    i. vinyl
    ii. aluminum

33. Discuss cutting, shaping and securing methods for extruded mouldings.

34. Describe sound control.
    i. transmission
    ii. absorption
    iii. reflection

35. Describe the materials and methods used to control sound.

36. Describe the standard types of molding.

Practical Requirements:

None

AK1230 Portable Power Tools

Learning Outcomes:

- Demonstrate an understanding of the operation of portable power tools.

Duration: 45 Hours

Pre-Requisite(s): AK1200

Objectives and Content:

1. Identify pneumatic power sources and connections.

2. Identify the types of portable power and pneumatic tools and describe their applications, safety accessories, care and use.
   - i. saws
     - circular
     - jig
     - reciprocating
     - mitre
   - ii. drills
   - iii. planes
   - iv. sanders
     - belt
     - finish (random orbital)
   - v. routers and trimmers
   - vi. nailers and staplers
   - vii. portable compressors
   - viii. plate joiners
   - ix. screw guns
   - x. heat guns
   - xi. pocket screw jigs and dowel jigs

3. Describe the importance of matching accessories for portable power tools to their intended use.
   - i. blades
   - ii. fences
   - iii. knives
   - iv. template guides
   - v. cutters
   - vi. depth gauges
   - vii. bits

4. Describe the use and care of extension cords and air hoses.

5. Describe powder-actuated tools (low velocity), their applications, care and use.
   i. types
   ii. safety
   iii. codes and regulations
   iv. fasteners and charges
   v. causes of and disposal of misfires
   vi. relationships between pins, charges and materials.

Practical Requirements:

1. Set up and use pneumatic and electric hand tools.

2. Use the different types of staples and pins with a portable pneumatic nailer and stapler.

3. Service and store powder-actuated tools and supplies.

4. Operate a low velocity tool.

AK1240 Common Stationary Equipment

Learning Outcomes:

- Demonstrate an understanding of the operation of common stationary equipment.

Duration: 60 Hours

Pre-Requisite(s): AK1230

Objectives and Content:

1. Describe safety precautions for electrical power sources.
   - i. single and three phase connections
   - ii. voltage and amperage/line loss
   - iii. signs of overload in motors
   - iv. lockout procedure

2. Identify the types of common stationary equipment and describe their applications, safety accessories, care and use.
   - i. saws
   - ii. table
   - iii. band
   - iv. radial-arm
   - v. panel (vertical and sliding)
   - vi. scroll
   - vii. cut-off
   - viii. edge-bander
   - ix. sanders
     - disk
     - stroke
     - edge
     - spindle
     - drum/wide belt
   - x. mortisers
     - bit
     - chain
     - oscillating
     - chisel
   - xi. drill presses
   - xii. planers
   - xiii. jointers
   - xiv. shapers
   - xv. borers

xvi. bench grinders
xvii. dust collectors
xviii. CNC machining centre
xix. Compressor and air dryer
xx. Wood lathe

3. Describe the importance of matching accessories for common stationary equipment to their intended use.
   i. blades
   ii. knives
   iii. cutters
   iv. bits
   v. jigs

4. Describe the requirements for maintenance and log keeping.

Practical Requirements:

1. Set-up and operate common stationary equipment.

2. Change and maintain blades, bits and cutters.

3. Fabricate a jig.

AK1250 Joint Fabrication and Assembly

Learning Outcomes:

- Demonstrate the ability to fabricate and assemble joints**.**

Duration: 45 Hours

Pre-Requisite(s): AK1240

Objectives and Content:

1. Describe the principals involved in joining wood.

2. Identify and describe the different forces affecting joints.
   i. shear
   ii. tensile
   iii. compression

3. Identify the types of woodworking joints and describe their characteristics and applications.
   i. butt
   ii. mitre
   iii. lap joints
   iv. dado
   v. rabbet joint
   vi. dowel joint
   vii. tongue and groove joints
   viii. spline joints
   ix. mortise and tenon joints
   x. dovetail joints
   xi. biscuit or plate joint
   xii. coped joint
   xiii. finger
   xiv. scarf
   xv. pocket screwed joints

4. Describe the procedures used to fabricate and assemble joints.

Practical Requirements

1. Fabricate joints from solid woods and manufactured materials.

2. Develop and interpret basic shop drawings and simple layouts.

3. Develop and fit joints to specifications using:
   i. hand tools
   ii. power tools

4. Assemble joints by using:
   i. glue
   ii. clamps
   iii. assorted fasteners

5. Clean-up joints.

AK1260 Laminating

Learning Outcomes:

- Demonstrate the ability to identify different types of laminates.
- Demonstrate the ability to perform laminating procedures.

Duration: 45 Hours

Pre-Requisite(s): AK1250

Objectives and Content:

1. Identify types of laminates and describe their characteristics, applications and use.
   i. wood
   ii. plastic
   iii. metal on plastic laminate

2. Classify laminates.
   i. grades
   ii. finishes
   iii. sizes
   iv. specialties (solid core and acid resistant)

3. Describe the properties and applications of laminates.
   i. machining
   ii. bending
   iii. gluing
   iv. installing

4. Describe the manufacturing procedures for plastic laminates.

5. Describe the procedures used to install and finish laminates.
   i. measuring and over sizing
   ii. selection and use of adhesives
   iii. adhesion methods
   iv. application sequence for edges and surfaces
   v. application sequence for curved surfaces
   vi. trimming
      - hand and power tools
      - inside corners
   vii. selection and use of cleaning solvents

6. Describe different types of edge treatments.

i. Solid wood
ii. Veneer
iii. Laminate
iv. PVC
v. T-Molding

7. Describe briefly the manufacturing process for post-formed countertops.

8. Describe the procedures for joining plastic laminates using hand and power tools.

9. Describe the procedures for joining plastic laminates to other materials using hand and power tools.

10. Describe the criteria for selecting materials for laminating.
    i. solid woods, plywoods or veneers
    ii. sizes
    iii. moisture contents
    iv. density
    v. grain patterns
    vi. colors
    vii. temperature

11. Identify the criteria for selecting glues related to use of product.
    i. moisture conditions
    ii. temperature conditions
    iii. strength requirements

12. Describe gluing, assembling and clamping systems.
    i. growth rings and grain direction
    ii. special milling of components

13. Describe the clamping and lay-up systems.
    i. clamps, jigs and wedges
    ii. length of lay-up times related to glues and temperature

14. Define sizing and dressing of glued up units.

15. Identify wood turning practices.
    i. select stock to avoid defects
    ii. remove excess material prior to mounting
    iii. mount stock on lathe
    iv. select correct tools and equipment for job
    v. turn stock using tools and equipment
    vi. check size of piece using caliper to verify measurements
    vii. sand piece at slow speed to prepare for finish

16. Describe the procedures for dry bending solid woods and plywoods relative to:
    i. wood species
    ii. material
    iii. grains and radii
    iv. kerf cuts
    v. lamination of layers

17. Describe the procedures for steam bending solid woods and plywoods relative to:
    i. wood species
    ii. material
    iii. grains and radii
    iv. lamination of layers

Practical Requirements:

1. Apply laminates.

2. Bend wood using dry and steam methods.

3. Apply laminates to curved surfaces.
    i. select materials
    ii. select adhesives
    iii. select proper tools
    iv. apply laminates
    v. conduct final cleanup

4. Laminate solid wood.

5. Apply edge treatments.

AK1290 Basic Casework

Learning Outcomes:

- Demonstrate the ability to identify and install hardware used in basic casework.
- Demonstrate the ability to layout and assemble basic casework.

Duration: 75 Hours

Pre-Requisite(s): AK1120

Objectives and Content:

1. Identify common types of hinges and drawer slides and describe their characteristics, applications and procedures to install.

   Hinges
   i. butt
   ii. surface mounted
   iii. concealed
   iv. semi-concealed
   v. pin
   vi. piano
   vii. double action hinge

   Drawer Slides
   i. integrated
   ii. full extension
   iii. soft closing

2. Describe the advantages and disadvantages of common hinges.
   i. strength
   ii. aesthetics
   iii. adjustments

3. Identify the types of handles, pulls, knobs and accessories and describe their characteristics, applications and procedures to install.

4. Describe typical locations of hardware.
   i. style
   ii. balance
   iii. application

5. Identify the types of catches, locks and latches and describe their characteristics, applications, location and procedures to install.

i. touch latches
ii. friction
iii. magnetic and roller - bullet catches
iv. drawer/door locks
v. gang locks
vi. anti-tilt devices (drawers)
vii. elbow catches
viii. double-ball catches
ix. escutcheon plates

6. Identify types of hardware used for sliding cabinet doors and drawers and describe their characteristics, applications and procedures to install.
   i. shop made (wood on wood)
   ii. manufactured types (metal and nylon)

7. Identify types of hardware for adjustable/non-adjustable shelves and describe their characteristics, applications, spacing and procedures to install.
   i. standards
   ii. ferrules
   iii. pins
   iv. brackets
   v. cleats

8. Identify types of special purpose hardware and describe their characteristics, applications, location and procedures to install.
   i. tray-lift
   ii. turning shelf
   iii. tambour
   iv. lid stays
   v. racks
   vi. flipper/pocket door
   vii. cabinet connectors
   viii. grommets (cable holes)
   ix. levelers
   x. casters
   xi. computer
   xii. blind corner
   xiii. miscellaneous

9. Describe jigs and templates used for location and installation of hardware.

10. Identify types of knockdown fittings and describe their characteristics, applications, location and procedures to install.

11. Describe the 32mm system.

12. Describe the procedures used to fabricate framed and frameless casework.
    i. preliminary work
    ii. shop drawings
    iii. notes
    iv. layout rods
    v. other full-scale layouts
    vi. cutting lists/optimizing
    vii. planning
        - sectional
        - knockdown
        - shop/site assembled
    viii. selection of materials
        - solid stock
        - sheet materials
        - allowance for waste
    ix. selection of cutting and surfacing equipment
    x. cutting procedures and sequence
    xi. machining methods
        - custom work
        - mass production
    xii. sanding and prefinishing (before final assembly)
    xiii. pre-assembly
    xiv. assembly

13. Describe cabinet components such as gables, tops, bottoms, doors and drawers.

14. Describe the procedures used to fabricate and construct basic cabinet doors.
    i. planning
    ii. selection of materials
    iii. type of door, such as panel, slab and tambour
    iv. construction
    v. installation and adjustment of hardware

15. Describe the procedures used to fabricate and construct basic cabinet drawers.
    i. planning
    ii. selection of materials
    iii. construction
    iv. installation and adjustment of hardware

16. Describe the procedures used to fabricate and construct interior and exterior doors.
    i. planning
        - sizing
        - clearances
    ii. selection of materials

iii. door construction
- panel
- solid
- core (veneer)

iv. installation and adjustment of hardware

17. Identify types of interior and exterior door jambs and describe their characteristics, applications and procedures to install.
i. machining requirements
ii. side-light requirements
iii. transom requirements

18. Describe the procedure used to fabricate window frames and sashes.
i. planning
- sizing
- clearances

ii. selection of materials
iii. construction of materials
- joint selection
- sash installation
- glazing procedures

Practical Requirements:

1. Fabricate casework with doors and drawers.
i. develop layout-rod
ii. select materials
iii. produce cutting list
iv. cut sheet material
v. break-out solid woods
vi. dress and cut to size
vii. glue up or laminate panels
viii. machine components
ix. assemble
x. install hardware

2. Develop a project using:
i. jigs
ii. templates
iii. stops

3. Demonstrate the 32 mm system.

4. Fabricate a project using millwork procedures.

AK1301 Wood Finishing I

Learning Outcomes:

- Demonstrate knowledge of finishing products and wood preparation.
- Demonstrate the ability to apply finishing products.

Duration: 80 Hours

Pre-Requisite(s): AK1230

Objectives and Content:

1. Identify the types of abrasives and describe their applications.
   i. flint
   ii. garnet
   iii. aluminum oxide
   iv. silicon carbide
   v. abrasive fibres

2. Describe grit-sizes and their usage.

3. Describe pre-finishing procedures.
   i. glue removal
   ii. final surface repairs
   iii. final sanding
   iv. filling
   v. metal

4. Identify the types of stains and describe their characteristics, applications and procedures for use.
   i. Water
   ii. Alcohol
   iii. oil

5. Describe the standard staining operations to achieve the desired color.

6. Describe the use of paste wood fillers.

7. Describe the difference between sealing and wash-coating.

8. Identify the types of finishing products and describe their characteristics, applications and procedures for use.
   i. lacquers
   ii. varnishes

iii. oils
iv. water based finishes

9. Identify compatible solvents and thinners for finishing products.

10. Describe the different methods of applying finishing coats.
    i. spraying
    ii. brushing
    iii. wiping

11. Describe common finishing problems and their solutions

12. Identify the types of spray equipment and describe their applications, adjustments, care and use.
    i. airless and air assisted airless
    ii. high volume - low pressure
    iii. flat line (automated) systems
    iv. spray booths

13. Describe fire hazards posed by the use, storage and disposal of finishing products and harmful materials.
    i. oily rages
    ii. lighting and ventilation systems
    iii. vapors

14. Describe the harmful effects of vapors from solvents and how to protect against them:
    i. respiratory
    ii. skin and eye

15. Describe the safe disposal of potentially dangerous or harmful materials.
    i. oily rags
    ii. finishing products

Practical Requirements:

1. Prepare projects previous to applying finish.
    i. removing glue
    ii. final surface repair
    iii. filling
    iv. final sanding (hand and machine)

2. Apply different types of stain to wood.

3. Apply sealer and wash-coats.

4. Apply top-coats.
   i. Lacquers
   ii. Varnishes
   iii. Oils
   iv. water based finishes

5. Use different types of spray equipment to demonstrate spray techniques.

6. Clean and store tools and spray equipment.

AK1120 Blueprint II - Intermediate

Learning Outcomes:

- Demonstrate the ability develop free hand sketches and shop drawings
- Demonstrate the ability to layout for shop projects

Duration: 60 Hours

Pre-Requisite(s): AK1100

Objectives and Content:

1. Describe the pertinent information found on drawings.
   i. architectural
   ii. structural drawings
   iii. mechanical drawings
   iv. electrical drawings
   v. shop drawings

2. Describe plan views in relation to:
   i. partition-layout
   ii. room-size
   iii. door and window location
   iv. location of millwork

3. Describe the process to interpret interior elevation views, sections and details and cross-reference with specifications and room-finishing schedules to make the shop-drawings.

4. Describe how preparatory and finishing work by other trades affects the cabinetmaker's work.
   i. backing in partitions and walls
   ii. interior finish on floors and walls
   iii. mechanical and electrical work

5. Describe how to construct geometric shapes and lines.
   i. draw lines to scale
   ii. scale lines
   iii. divide lines into equal parts
   iv. bisect lines
   v. angles
   vi. bisect angles
   vii. concave and convex curves
   viii. circles, arcs, tangents, ellipses, polygons

6. Describe procedures to sketch orthographic projections
   i. visualize object
   ii. select views
   iii. layout sketch
   iv. sketch projection
   v. dimension sketch
   vi. make notations

7. Describe the use of:
   i. computer assisted drawings
   ii. CNC equipment in relation to computer assisted drawings

8. Describe how to use computer assisted drafting to draw a room containing cabinets which includes:
   i. job parameters
   ii. exterior walls, doors and windows
   iii. peninsula walls
   iv. appliance placement
   v. lower and upper cabinets
   vi. cabinet choice and modifications
   vii. counter tops choice and modification
   viii. moulding choice and placement
   ix. view elevation, perspective and birds eye view
   x. set up of rendering graphics to customize the color & texture specifications
   xi. cut lists and modifications
   xii. set up multi-draw

9. Describe the procedure to save and print plans.

10. Describe the different types of computer software available to the cabinetmaking industry.

Practical Requirements:

1. Develop freehand sketches.

2. Develop working drawings and layouts.

3. Construct geometric shapes and lines.
   i. draw lines to scale
   ii. scale lines
   iii. divide lines into equal parts
   iv. bisect lines
   v. angles
   vi. bisect angles

vii. concave and convex curves
viii. circles, arcs, tangents, ellipses, polygons

4. Sketch orthographic projections.
   i. visualize object
   ii. select views
   iii. layout sketch
   iv. sketch projection
   v. dimension sketch
   vi. make notations

5. Evaluate designs
   i. balance
   ii. proportion

6. Design an efficient kitchen-cabinet layout.

7. Use working drawings and specifications of a commercial building and produce:
   i. shop drawings
   ii. sketches of typical millwork

8. Develop shop drawings and layouts for shop-projects, including all necessary views and details and materials take-off lists.

AK1320 Industry Codes and Practices

Learning Outcomes:

- Demonstrate the ability to identify the roles of other construction trades

Duration: 45 Hours

Pre-Requisite(s): AK1130

Objectives and Content:

1. Describe the role of federal, provincial and municipal authorities with regards to:
   i. regulations and codes (NBC, CSA)

2. Identify and describe the roles of architects, engineers, designers and construction associations.

3. Describe the legal relationship that exists between the general and the sub-contractor.

4. Describe the responsibilities of the cabinetmaker in relationship to the:
   i. client
   ii. architect
   iii. general contractor
   iv. designer

5. Describe sequencing and scheduling of trades relevant to:
   i. bar charts
   ii. critical path methods
   iii. scheduling (supply dates and starts)
   iv. completion times

6. Describe the required procedures to follow for changing design and specifications of work in progress.

7. Identify and describe the importance of appropriate communications with fellow employees.

8. Identify the dangers associated with radiation from high-frequency electronic gluing and drying equipment.

9. Describe the structure of companies with regards to:
   i. difference between proprietorship and limited company
   ii. payments, sales tax and G.S.T.

iii. contracts (general, construction)
iv. bid depository
v. labour costs
vi. material costs
vii. overhead costs

10. Explain the basic requirements for valid legal contracts; circumstances that may result in voided contracts; what constitutes a breach of contract.

11. Describe the legal relationships which exist in construction contracts and the legal precedence of construction documents regarding:
    i. owner
    ii. designer
    iii. general contractor
    iv. sub-contractors
    v. suppliers-workers
    vi. architect

12. Describe how labour costs are calculated with regards to:
    i. direct wages
    ii. indirect labour costs
    iii. record keeping- (time sheets)
    iv. piece-work

13. Explain how material costs are calculated from material-lists.

14. Describe the most common overhead costs and identify the differences between:
    i. small shops
    ii. large production shops

15. Describe Quality Control systems.

Practical Requirements:

None

AK1330 Installation Procedures

Learning Outcomes:

- Demonstrate the ability to install specific shop casework to specifications and drawings.

Duration: 45 Hours

Pre-Requisite(s): AK1320
AK1290

Objectives and Content:

1. Identify the accepted heights and spacing of wall mounted units.

2. Describe how studs or backings can be found in framed walls.

3. Describe the proper method of securing materials:
   i. adhesives
   ii. screws and bolts
   iii. hollow and solid wall fasteners

4. Identify various types and characteristics of counter-top surface materials :
   i. marble
   ii. granite
   iii. solid surface
   iv. stainless steel
   v. butcher block
   vi. tile
   vii. plastic laminate

5. Describe problems associated with installations
   i. minor warpages
   ii. imperfect walls and floors
   iii. utilities access
   iv. humidity and temperature

6. Describe general procedures
   i. sequence of assembly
   ii. leveling
   iii. plumbing
   iv. shimming
   v. scribing
   vi. co-ordinating project with other trades

vii. temporarily protecting product after installation

7. Describe the checks for ease of operation following installation of doors, drawers, slides, etc.

Practical Requirements:

1. Install casework according to specifications and drawings.

2. Demonstrate good housekeeping practices

AM1000 Introduction to Essential Skills

Learning Outcomes:

- Demonstrate knowledge of the nine nationally recognized essential skills.
- Demonstrate knowledge of the essential skills levels of complexity.
- Demonstrate knowledge of the essential skills required for the learners chosen trade.
- Demonstrate an awareness of essential skills assessments.

Duration: 9 Hours

Pre-Requisite(s): None

Objectives and Content:

1. Identify and describe the essential skills recognized by the Government of Canada through the Office of Literacy and Essential Skills (OLES).
   i. reading
   ii. document use
   iii. numeracy
   iv. writing
   v. oral communication
   vi. working with others
   vii. thinking
   viii. computer use
   ix. continuous learning

2. Describe the Levels of Complexity measurement assigned to essential skills.

3. Identify the essential skills, along with their complexity level, identified as necessary for the learner's trade.
   i. RSOS / NOA content[1]
   ii. OLES Essential Skills Profiles[2]
   iii. OLES tools and support for apprentices and tradespersons[3]

4. Describe the nature and purpose of essential skills assessment.
   i. self-assessment & formal assessment tools
   ii. indicators of deficiencies
   iii. suggestions for improvement

5. Describe the benefits of essential skills improvement.
   i. confidence at work
   ii. employability

iii. success in apprenticeship
iv. wage & job advancement

Practical Requirements:

1. Complete an essential skills self-assessment addressing numeracy, document use and reading. The online **Government of Canada Essential Skills Indicator**[4] and **Essential Skills Self-Assessment for the Trades**[5] are to be used unless the instructor provides a similar assessment tool or tools.

2. Participate in a group discussion about the impact of gaps in essential skills that may be revealed by the self-assessments completed, and the value of improving essential skills.

Students are graded complete or incomplete on this practical work, no grade is permitted for self-assessment performance. However, completion of the practical requirements is mandatory for completion of this unit.

Resources:

All footnotes are in the companion document, Resources for Introduction to Essential Skills, which is available online from Apprenticeship and Trades Certification.

AM1101 Math Essentials

Note: It is recommended that AM1101 be delivered in the first semester of the Pre-employment program.

Learning Outcomes:

- Demonstrate knowledge of essential numeracy skills.
- Demonstrate knowledge of mathematics as a critical element of the trade environment.
- Demonstrate knowledge of mathematical principles in trade problem solving situations.
- Demonstrate the ability to solve simple mathematical word problems.

Duration: 42 Hours

Pre-Requisite(s): None

Objectives and Content:

Wherever possible, the instructor is expected to use trade specific examples to reinforce the course objectives.

1. Describe whole number operations.
   i. read, write, count, round off, add, subtract, multiply and divide whole numbers

2. Describe the application of the order of operations in math problems.

3. Describe fraction and mixed number operations.
   i. read, write, add, subtract, multiply and divide fractions

4. Describe decimal operations.
   i. read, write, round off, add, subtract, multiply and divide decimals

5. Describe percent/decimal/fraction conversion and comparison.
   i. convert between fractions, decimals and percents

6. Identify percentage operations.
   i. read and write percentages
   ii. calculate base, rates and percentages

7. Identify ratio and proportion operations.
   i. use a ratio comparing two quantities with the same units
   ii. use a proportion comparing two ratios

8. Describe the use of the imperial measurement system in math problems.
   i. identify units of measurement
      - length
      - mass
      - area
      - volume
      - capacity

9. Describe the use of the metric measurement system in math problems.
   i. identify units of measurement
      - length
      - mass
      - area
      - volume
      - capacity

10. Identify angles, lines and geometric shapes.
    i. use a protractor to measure angles
    ii. determine whether an angle is right, acute or obtuse
    iii. identify parallel, perpendicular, horizontal and vertical lines
    iv. identify types of triangles, quadrilaterals, and 3-dimensional shapes

11. Describe estimation strategies.
    i. estimate a linear measure using a referent
    ii. estimate length, area and volume of objects in metric and imperial systems

12. Describe problem solving that involves linear measurement using instruments such as rulers or tape measures, in the metric and imperial systems.

Practical Requirements:

1. To emphasize or further develop specific knowledge objectives, students will be required to complete practical demonstrations which confirm proper application of mathematical theory to job skills.

AM1121 Cabinetmaker Math Fundamentals

Learning Outcomes:

- Demonstrate knowledge of mathematical concepts in the performance of trade practices.
- Demonstrate knowledge of mathematics as a critical element of the trade environment.
- Solve mathematical word problems
- Demonstration knowledge of mathematical principles for the purposes of problem solving, job and materials estimation, measurement, calculation, system conversion, diagram interpretation and scale conversions, formulae calculations, and geometric applications.

Duration: 42 Hours

Pre-Requisite(s): AM1101

Objectives and Content:

The instructor is required to use trade specific examples to reinforce the course objectives.

1. Describe percent/decimal/fraction conversions and comparisons in trade specific situations.

2. Describe ratios and proportions as they relate to trade specific problems.

3. Describe the use of the Imperial and Metric measurement systems in trade specific applications.

4. Describe Imperial and Metric conversions in trade specific situations.
   i. convert between imperial and metric measurements
   ii. convert to another unit within the same measurement system

5. Describe how to manipulate formulas using cross multiplication, dividing throughout, elimination, and substitution to solve trade specific problems.
   i. right angle triangles
   ii. area
   iii. volume
   iv. perimeter
   v. density

6. Identify calculations involving geometry that are relevant to the trade.
   i. angle calculations

ii. circle calculations

7. Identify math processes used to complete administrative trade tasks.
   i. material estimation
   ii. material costing
   iii. time & labour estimates
   iv. taxes & surcharges
   v. markup & projecting revenue

Practical Requirements:

1. To emphasize or further develop specific knowledge objectives, students will be asked to complete practical demonstrations which confirm proper application of mathematical theory to job skills.

Note: This course is **non-transferable** to other trades programs, and **not eligible for prior learning assessment**. Students completing training in this trade program are required to complete this math course. Apprentice transfers under Provincial / Territorial Mobility agreements may be exempt from this requirement.

CM2161 Communication Essentials

Learning Outcomes:

- Demonstrate knowledge of the importance of well-developed writing and oral communication skills in the workplace.
- Demonstrate knowledge of the principles of effective workplace writing.
- Demonstrate knowledge of the purpose of various types of workplace documentation and workplace meetings.
- Demonstrate knowledge of the importance of effective interpersonal skills in the workplace.
- Demonstrate knowledge of effective job search techniques

Duration: 36 Hours

Pre-Requisite(s): None

Objectives and Content:

Wherever possible, the instructor is expected to use trade specific examples to reinforce the course objectives.

1. Define communications terminology used in the trade.

2. Identify the principles of effective workplace writing.
   i. grammar, punctuation, mechanics
   ii. sentence and paragraph construction
   iii. tone, language, and word choice
   iv. the writing process
      - planning
      - writing
      - editing/revising

3. Identify sources of information used to communicate in the workplace.
   i. regulations
   ii. codes
   iii. OH&S requirements
   iv. prints, drawings and specifications
   v. company and client documentation

4. Identify types and purposes of informal workplace documents.
   i. reports
      - incident
      - process
      - progress

ii. common trade specific forms
iii. primary and secondary methods of information gathering
iv. accuracy and completeness in reports and forms

5. Demonstrate an understanding of interpersonal communications in the workplace.
   i. recognize group dynamics
   ii. contribute information and expertise
   iii. individual learning styles
      - audible
      - visual
      - experiential
      - theoretical
   iv. recognize respectful and open communication
   v. accept and provide feedback
   vi. interpret non-verbal communication cues
      - body language
      - signals

6. Demonstrate an understanding of effective oral communication skills.
   i. listening
      - receiving, understanding, remembering, reflecting, evaluating, paraphrasing, and responding
   ii. speaking
      - using clear and proper words
      - tone, style, and vocabulary
      - brevity
   iii. common workplace oral communication situations
      - introducing self and others
      - telephone conversations
      - tool box/safety talks
      - face-to-face conversations
      - communicating with co-workers, supervisors, clients, and other trades people

7. Identify common practices related to workplace meetings.
   i. meeting formats
   ii. meeting preparation
   iii. agendas and minutes
   iv. roles, responsibilities, and etiquette of meeting participants

8. Identify acceptable workplace use of communication technologies
   i. cell / smart phone etiquette
   ii. voice mail
   iii. e-mail
   iv. texting / messaging through social media

v. teleconferencing / videoconferencing for meetings and interviews
vi. social networking
vii. other emerging technologies

9. Demonstrate an understanding of effective job search techniques
   i. employment trends, opportunities, and sources of employment
   ii. job ads and the importance of fitting qualifications to job requirements
   iii. resumes
      - characteristics of effective resumes
      - types of resumes
      - principles of resume formatting
   iv. effective cover letters
   v. job interview process
      - pre-interview preparation
      - interview conduct
      - post-interview follow up

Practical Requirements:

1. Write a well-developed, coherent, unified paragraph.

2. Complete a trade-related form.

3. Prepare an agenda for a toolbox safety talk.

4. Participate in a simulated oral workplace communication situation.

5. Prepare a resume.

SD1761 Workplace Essentials

Note: It is recommended that SD1761 be delivered in the second half of pre-employment training.

Learning Outcomes:

- Demonstrate a knowledge of workplace requirements in the areas of personal responsibility, unions, workers compensation, workers' rights, and human rights.
- Demonstrate a knowledge of quality customer service.

Duration: 24 Hours

Pre-Requisite(s): None

Objectives and Content:

Wherever possible, the instructor is expected to use trade specific examples to reinforce the course objectives.

1. Identify personal responsibilities and attitudes that contribute to on-the-job success.
   i. asking questions
   ii. working safely
   iii. accepting constructive feedback
   iv. time management & punctuality
   v. respect for authority
   vi. stewardship of materials, tools and properties

2. Define unions and identify their role in the workplace.
   i. purpose of unions
   ii. common union structure
   iii. unions in this trade

3. Demonstrate an understanding of the Worker's Compensation process.
   i. aims, objectives, and benefits of the Workplace Health, Safety and Compensation Commission
   ii. role of the workers advisor
   iii. internal review process

4. Demonstrate an understanding of worker's rights.
   i. labour standards
   ii. regulations, including:
      - hours of work & overtime
      - termination of employment

- minimum wages & allowable deductions
- statutory holidays, vacation time, and vacation pay

5. Demonstrate an understanding of human rights issues.
   i. awareness of the Human Rights Code and the role of the Human Rights Commission
   ii. categories of discrimination and strategies for prevention
      - direct
      - systemic
      - adverse effect
   iii. types of discrimination
      - race
      - ethnic origin
      - colour
      - religion
      - age
      - gender identify
      - sexual orientation
      - marital status
      - family status
      - disability
      - criminal conviction that has been pardoned
   iv. conduct that constitutes harassment and discrimination
      - objectionable conduct
      - comments or displays made either on a one-time or continuous basis that demeans, belittles, or causes personal humiliation or embarrassment to the recipient
   v. the value of diversity in the workplace
      - culture
      - gender identify
      - sexual orientation

6. Demonstrate an understanding of quality customer service.
   i. importance of quality service
   ii. barriers to quality service
      - physical and physiological
      - cultural
      - technological
   iii. customer needs & common methods for meeting them
   iv. characteristics & importance of a positive attitude
   v. interactions with challenging customers
   vi. addressing complaints and resolve conflict

Practical Requirements:

None

MC1062 Computer Essentials

Course Outcomes:

- Demonstrate knowledge of desktop/laptop and mobile computers and their operation.
- Demonstrate knowledge of word processing and spreadsheet software, internet browsers and their applications.
- Demonstrate knowledge of e-mail applications and procedures.
- Demonstrate an awareness of security issues related to computers.
- Demonstrate an awareness of online learning using computers.

Duration: 15 Hours

Pre-Requisite(s): None

Objectives and Content:

When possible, the instructor is expected to use trade specific examples to reinforce the course objectives.

1. Identify computer types used in the workplace, and the characteristics of each.
   i. desktop/laptop computers
   ii. tablets
   iii. smartphones

2. Identify common desktop and mobile operating systems.
   i. Windows
   ii. Mac OS
   iii. iOS
   iv. Android

3. Describe the use of Windows operating system software.
   i. start and end a program
   ii. use the help function
   iii. use the find function
   iv. maximize and minimize a window
   v. open and scroll through multiple windows
   vi. use the task bar
   vii. adjust desktop settings such as screen savers, screen resolution, and backgrounds
   viii. shut down a computer

4. Identify the skills necessary to perform file management commands.
   i. create folders

ii. copy files and folders
iii. move files and folders
iv. rename files and folders
v. delete files and folders

5. Describe the use of word processing software to create documents.
   i. enter & edit text
   ii. indent and tab text
   iii. change text attributes
      - bold
      - underline
      - font
   iv. change layout format
      - margins
      - alignment
      - line spacing
   v. spell check and proofread
   vi. save, close & reopen a document
   vii. print document

6. Describe the use of spreadsheet software to create documents.
   i. enter data in cells
   ii. format data in cells
   iii. create formulas to add, subtract, multiply and divide
   iv. save, close & reopen a spreadsheet
   v. print spreadsheet

7. Describe the use of the internet in the workplace.
   i. web browsers
   ii. search engines
   iii. security issues
   iv. personal responsibility for internet use at work

8. Describe the role of e-mail.
   i. e-mail etiquette
      - grammar and punctuation
      - privacy issues when sharing and forwarding e-mail
      - work appropriate content
      - awareness of employer policies
   ii. managing e-mail
      - using folders
      - deleting, forwarding, replying
   iii. adding attachments to e-mail
   iv. view e-mail attachments
   v. printing e-mail

9. Describe computer use for online learning.
    i. online training
    ii. level exams
    iii. study guides
    iv. practice exams

Practical requirements:

1. Create, save and print a document using word processing software.

2. Create, save and print a document using spreadsheet software.

3. Send and receive an e-mail with an attachment.

AP1102 Introduction to Apprenticeship

Learning Outcomes:

- Demonstrate knowledge of how to become a registered apprentice.
- Demonstrate knowledge of the steps to complete an apprenticeship program.
- Demonstrate knowledge of various stakeholders in the apprenticeship process.
- Demonstrate knowledge of the Red Seal Program.

Duration: 12 Hours

Pre-Requisite(s): None

Objectives and Content:

1. Define terminology associated with apprenticeship.
   - i. apprentice
   - ii. registered apprentice
   - iii. trade qualifier
   - iv. journeyperson
   - v. certified journeyperson
   - vi. Certificate of Apprenticeship
   - vii. Certificate of Qualification
   - viii. dual certification
   - ix. compulsory trades

2. Explain the roles and responsibilities of those involved in the apprenticeship system in Newfoundland and Labrador.
   - i. registered apprentice
   - ii. training institution
   - iii. employer
   - iv. journeyperson
   - v. mentor
   - vi. Department of Immigration, Skills and Labour
     - Industrial Training section
     - Standards and Curriculum section
   - vii. Provincial Trade Advisory Committees (PTAC)
   - viii. Provincial Apprenticeship and Certification Board (PACB)

3. Describe the training components of an apprenticeship.
   - i. in-school
     - pre-employment / Level 1
     - advanced levels
   - ii. workplace experience

4. Explain the steps in the registered apprenticeship process.
   - i. meet entrance requirements
     - education
     - employment
     - Recognition of Prior Learning (RPL) - if applicable
   - ii. complete the registration process
     - application
     - required documents
   - iii. complete the Memorandum of Understanding (MOU)
     - contract responsibilities
     - probation period
     - cancellation
   - iv. maintain Record of Occupational Progress (Logbook)
     - sign off skills
     - record hours
     - update Apprenticeship Program Officer (APO) on progress
   - v. class calls
     - hour requirements
     - EI eligibility
     - training schedule
   - vi. level examinations - if applicable
   - vii. progression schedule
     - apprenticeship level
     - wage rates
   - viii. certification examinations
     - Provincial
     - Interprovincial
       - written
       - practical - if applicable
   - ix. certification
     - Certificate of Apprenticeship
     - Certificate of Qualification
     - Provincial journeyperson - Blue Seal
     - Interprovincial journeyperson - Red Seal endorsement (RSE)

5. Identify the Conditions Governing Apprenticeship.

6. Discuss cancellation of apprenticeship.
   - i. failure to notify of address change
   - ii. extended periods of unemployment
   - iii. lack of contact with an APO for an extended period
   - iv. failure to respond to class calls
   - v. declining of multiple class calls

7. Explain the Interprovincial Standards Red Seal program.
   - i. designated Red Seal trades

ii. the Red Seal Occupational Standard (RSOS)
iii. relationship of RSOS to IP examination
iv. national qualification recognition and mobility

8. Identify the current financial incentives available to apprentices.
   i. Federal
   ii. Provincial

9. Explain the Provincial / Territorial Apprentice Mobility Guidelines.
   i. temporary mobility
   ii. permanent mobility

10. Describe Atlantic and National Harmonization initiatives.

Practical Requirements:

1. Use the Provincial Apprenticeship and Trades Certification website at www.gov.nl.ca/aesl/app/.
   i. locate, download, and complete the Application for Apprenticeship and Memorandum of Understanding (MOU)
   ii. locate the address of the Industrial Training office closest to this campus
   iii. locate the training schedule and identify the start date of the next class call for this trade
   iv. locate and review the learning resources applicable to this trade
      - Study Guide
      - Exam Preparation Guide
      - Plan of Training

2. Use the Plan of Training applicable to this trade.
   i. locate the hours for the trade
      - total in-school
      - total required for certification
   ii. locate the number of levels
   iii. locate the courses in each level
   iv. locate the hours required for progression to a Level II apprentice and the wage percentage of that level

Level 2

AK1270 Specialty Stationary Equipment

Learning Outcomes:

- Demonstrate the ability to operate specialty stationary equipment.

Duration: 60 Hours

Pre-Requisite(s): AK1260

Objectives and Content:

1. Identify the types of specialty stationary equipment and describe their applications, safety accessories, care and use.
   - i. lathes
   - ii. tenoners
     - single end
     - double end
   - iii. cold and hot presses
   - iv. dovetailer
   - v. guillotine
   - vi. hinge & line boring machine
   - vii. pocket hole machine
   - viii. shaper
   - ix. overhead (pin) router

2. Describe the importance of matching accessories for specialty stationary equipment tools to their intended use.
   - i. blades
   - ii. fences
   - iii. knives
   - iv. guides
   - v. cutters
   - vi. hold downs
   - vii. bits
   - viii. guards
   - ix. power feed attachments

Practical Requirements:

1. Demonstrate an ability to set up and operate light production equipment.

AK1302 Wood Finishing II

Learning Outcomes:

- Demonstrate knowledge of finishing products and wood preparation.
- Demonstrate the ability to apply finishing products using proper techniques.

Duration: 50 Hours

Pre-Requisite(s): AK1301

Objectives and Content:

1. Identify the types of abrasives and describe their applications.
   i. pumice
   ii. rotten stone
   iii. rubbing compound
   iv. abrasive fibres

2. Describe the characteristics of abrasives.
   i. hardness
   ii. sharpness
   iii. color
   iv. open/closed
   v. wet/dry

3. Identify the differences between types and grades of backing materials used for sheets and belts.
   i. high quality paper
   ii. cloth

4. Identify which finishing process should be used to achieve desired appearances and performance.

5. Identify the bleaches and the compatible neutralizers commonly used for wood.

6. Describe procedures to prepare and apply standard bleach.

7. Identify the products that are compatible with successive top-coats.

8. Identify the types of finishing products and describe their characteristics, applications and procedures for use.
   i. shellacs
   ii. UV finishes
   iii. wax-finishes

iv. polyesters
v. synthetic finishes

9. Describe special customized treatments and their applications.
   i. glazing
   ii. shading (antique effects)
   iii. distressing

10. Describe procedures to strip and match old or existing finishes.

Practical Requirements:

1. Establish finishing process required to achieve desired appearances and durability.

2. Stain project to achieve desired colors including sap-staining, shading and toning.

3. Apply top-coats.
   i. wax finishes
   ii. synthetic finishes
   iii. shellac

4. Apply finish coats.
   i. clear
   ii. light or dark tones
   iii. high or low sheen

5. Select and use compounds for a particular application.
   i. pumice
   ii. rotten stone
   iii. wax
   iv. rubbing compound

AK1310 Stairs

Learning Outcomes:

- Demonstrate the ability to construct and install stairs.

Duration: 90 Hours

Pre-Requisite(s): AK1120

Objectives and Content:

Fundamentals of Stair Construction

1. Describe relevant issues, practices and procedures relating to:
   i. safety
   ii. materials
   iii. fasteners
   iv. joinery
   v. tools
   vi. blueprint reading
   vii. building codes

2. Identify and describe types of common stairs.
   i. straight flight
   ii. L-shaped
   iii. U-shaped
   iv. winder
   v. interior
   vi. curved

3. Define stair terminology.
   i. total rise
   ii. total run
   iii. unit rise
   iv. unit run
   v. headroom
   vi. flight
   vii. line of travel
   viii. effective depth
   ix. angle of incline
   x. open and closed stringers
   xi. balustrade
   xii. wedges

4. Identify and describe stair components and their characteristics.
   i. stringers
   ii. risers
   iii. treads
   iv. skirts
   v. nosing
   vi. newels
   vii. baluster
   viii. handrails
   ix. guardrails
   x. fillets
   xi. rosettes
   xii. finials
   xiii. shoe rails
   xiv. easements
   xv. goosenecks
   xvi. volutes
   xvii. landings

5. Identify and describe components of finish stairs.
   i. stringers
      - open
      - closed
   ii. housed
   iii. wall skirt
   iv. mitred skirt
   v. nosing return
   vi. newels
      - starting newel
      - landing newel
   vii. balustrade
   viii. gooseneck
   ix. volute
   x. turn out
   xi. level to rake (handrail)
   xii. balluster
   xiii. fillet
   xiv. stringer and buttress cap
   xv. riser
   xvi. tread
   xvii. moldings

6. Describe the procedures to calculate finish stair material.
   i. balluster spacing
   ii. ballusters
   iii. tread stock

iv. riser stock
v. skirt material
vi. stringers
vii. buttress
viii. handrail
ix. newel posts
x. fillets
xi. mouldings
xii. shoe rail
xiii. housed stringer
xiv. open stringer

7. Describe the layout, construction and installation of finish stairs.
   i. total rise
   ii. total run
   iii. unit rise
   iv. unit run
   v. headroom
   vi. stair ratio
   vii. fasteners
   viii. adhesives
   ix. National Building Code
   x. hangers
   xi. attachment
   xii. handrail
   xiii. guardrails
   xiv. landings
   xv. line of flight
   xvi. storey pole
   xvii. materials
   xviii. stair joinery
   xix. assembly
   xx. scribing
   xxi. jig
   xxii. template
   xxiii. reveal
   xxiv. equalizing first tread rise
   xxv. stairwell opening
   xxvi. code reference

Geometric Stairs

8. Describe the types of geometric stairs.
   i. spiral
   ii. circular
   iii. elliptical

iv. curved

9. Describe the components of geometric stairs.
   i. wall skirts
   ii. mitred skirts
   iii. gooseneck
   iv. volutes
   v. turnouts
   vi. level to rake (handrail)
   vii. ballusters
   viii. ballustrade
   ix. nosing return
   x. starting newel
   xi. landing newel
   xii. fillets
   xiii. string and buttress caps
   xiv. tread
   xv. riser
   xvi. staved stringer
   xvii. laminated stringer
   xviii. handrail
   xix. line of travel
   xx. point of radiance
   xxi. rough framing

10. Describe the procedures to calculate geometric stair dimensions.
   i. inner tread width
   ii. outer tread width
   iii. circumference
   iv. length of handrails
   v. length of stringers
   vi. total rise
   vii. total run
   viii. unit rise
   ix. number of risers
   x. number of treads
   xi. degree of turn
   xii. inner radius
   xiii. outer radius
   xiv. unit run at the line of travel
   xv. tread angle
   xvi. rough opening dimensions

11. Describe the construction and installation of geometric stairs.
   i. geometric layout
   ii. moulds

- drums
- staved

iii. laminate stringer
iv. stretch out line
v. reference lines
vi. treads
vii. risers
viii. staving
ix. handrails
x. winders
xi. fasteners
xii. adhesives
xiii. ballusters
xiv. ballustrades
xv. volutes
xvi. rosettes
xvii. goose necks
xviii. easements
xix. shoe rail
xx. finial
xxi. fillets

Practical Requirements:

1. Calculate stair dimensions.

2. Estimate materials

3. Design, construct and install a stair system.

AK2100 Blueprint III (Advanced)

Learning Outcomes:

- Demonstrate the ability to create sketches and shop drawings to specifications for commercial projects.

Duration: 40 Hours

Pre-Requisite(s): AK1120

Objectives and Content:

1. Describe arbitrary and conflicting information within drawings and specifications for commercial buildings.

2. Describe the various details and specifications for walls, ceilings and column in plan elevations, sectional and exploded views for commercial buildings.

3. Describe Reflected Ceiling Plans and the information they contain.

Practical Requirements:

1. Produce quick freehand sketches.

2. Develop layouts, templates and full-scale patterns.

3. Develop shop drawings for all shop projects.

4. Develop appropriate cutting lists.

5. Produce a shop drawing according to detailed specifications and instructions

Level 3

AK1282 High Production Equipment

Learning Outcomes:

- Demonstrate the ability to operate high production equipment.

Duration: 60 Hours

Pre-Requisite(s): AK1270

Objectives and Content:

1. Identify the types of high production equipment and describe their applications, safety accessories and care and use.
   - i. saws
     - straight line rip
     - multi-rip
   - ii. gluers
     - spray
     - spreader
   - iii. clamping
     - case clamp
     - clamp carrier
   - iv. pneumatic press
   - v. profile grinders
   - vi. CNC equipment
   - vii. horizontal copying lathe
   - viii. profile sander
   - ix. moulder
   - x. edge bander
   - xi. optimizing cut-off saw
   - xii. beam saw

2. Describe the importance of matching accessories for high production equipment tools to their intended use.
   i. blades
   ii. guides
   iii. knives
   iv. guards
   v. cutters
   vi. fences
   vii. bits
   viii. power feed attachments

Practical Requirements:

1. Set-up and operate high production equipment.

AK2102 Blueprint IV (Computer Aided Drafting)

Learning Outcomes:

- demonstrate knowledge of computer aided drafting.

Duration: 60 Hours

Pre-Requisite(s): AK2100

Objectives and Content:

1. Describe drafting tools and materials used for drawing plans.

2. Describe the use of:
   i. computer spreadsheets
   ii. computer estimating software

3. Describe the procedures in generating computer drawings, including:
   i. orthographic views
   ii. isometric views

4. Describe how to use computer assisted drafting to draw a room containing a commercial counter which includes:
   i. cross-sections of the cabinets
   ii. detail drawings of special sections and joints required
   iii. proper text and dimensions
   iv. set up multi-drawings

5. Describe the use of specialty CNC software to:
   i. draw items, assign tools and send drawings to machine.

6. Create or change parameters and templates with cabinet software.

Practical Requirements:

1. Use computer assisted drafting to draw a room containing cabinets which includes:
   i. job parameters
   ii. exterior walls, doors and windows
   iii. peninsula walls
   iv. appliance placement
   v. lower and upper cabinets
   vi. cabinet choice and modifications
   vii. counter tops choice and modification
   viii. moulding choice and placement
   ix. view elevation, perspective and bird=s eye view
   x. set up of rendering graphics
   xi. cut list and modifications
   xii. job costing
   xiii. accessories
   xiv. estimates
   xv. set up multi-draw

2. Use computer assisted drafting to draw a room containing a commercial counter which includes:
   i. cross-sections of the cabinets
   ii. detail drawings of special sections and joints required
   iii. proper text and dimensions

3. Use specialty CNC software to:
   i. Draw a cabinet part and run the program on the CNC machine
   ii. Create a template for a cabinet part using cabinet software.
   iii. Make changes to an existing set of cabinet parameters.

AK2202 Advanced Casework and Furniture Design

Learning Outcomes:

- Demonstrate knowledge of furniture design and layouts of architectural woodwork.
- Demonstrate the ability to design and construct casework and furniture using a variety of advanced machining techniques.

Duration: 120 Hours

Pre-Requisite(s): AK1290
AK2100

Objectives and Content:

Furniture

1. Describe principles and elements relating to cabinetry.
   i. harmony
   ii. rhythm (veneer selection)
   iii. proportion
   iv. balance and emphasis

2. Identify and describe the different styles of furniture.

3. Describe the color wheel and its applications.

4. Describe accepted industry practices in heights, widths and depths.
   i. service and work counters
   ii. tables, desks, vanities, chairs, benches, visual boards
   iii. knee and toe spaces
   iv. traffic flow
   v. golden mean rectangle (Geometric ratio & proportion)

5. Describe the use of specifications and drawings and their applications relative to customized cabinets, furniture units and other fixtures.

6. Describe industry practices.
   i. sequences of work
   ii. layouts, cutting lists
   iii. breakout of material
   iv. machining and assembly
   v. shipping and installation

7. Describe production procedures based on availability of equipment.

8. Describe face and backing veneer preparation.
   i. selection of veneer
   ii. methods of cutting veneer
   iii. methods of jointing veneer
   iv. matching

9. Describe gluing practices for vacuum, manual and hydraulic presses using hot and cold methods.
   i. type of glue used
   ii. pressures
   iii. loading

10. Describe methods of form construction using various materials and fasteners.

11. Identify the various trimming methods when using hand and power tools.

12. Describe construction relevant to:
   i. legs and rails
   ii. Describe construction for sloped and contoured casework.
   iii. doors
   iv. drawers
   v. hardware
   vi. joints

Architectural Millwork

13. Describe architectural woodworking and its application.
   i. paneling
   ii. door and window frames
   iii. store and office fixtures
   iv. columns

14. Describe the various joints for pre-assembled frame and panel construction.

15. Describe installation methods for millwork.
   i. nail
   ii. glue
   iii. screw
   iv. hang

16. Describe the procedures for millwork.
   i. preparation and layout
   ii. selection of hardware
   iii. installation

iv. touch up and finish

17. Describe the application of solid tongue and groove paneling with considerations given to shrinkage problems.

Solid Surfaces

18. Describe the procedures for preparing and installing solid surface material.
    i. manufacturers certification programs
    ii. material properties
    iii. tools and equipment
    iv. joining, machining, polishing and cleaning
    v. material hazards
    vi. adhesives
    vii. cutting, fitting, scribing
    viii. repairing

Practical Requirements:

1. Layout and build casework to reflect design and style principles.
    i. selection (wood)
    ii. sizing of cores
    iii. wood veneer applications
    iv. various matchings
    v. frame and panel-units
    vi. geometric shapes
    vii. arched items
    viii. wood bending
    ix. laminating

2. Construct a form.

D. Conditions Governing Apprenticeship Training

1.0 General

The following general conditions apply to all apprenticeship training programs approved by the Provincial Apprenticeship and Certification Board (PACB) in accordance with the *Apprenticeship Training and Certification Act (1999)*. If an occupation requires additional conditions, these will be noted in the specific Plan of Training for the occupation. In no case should there be a conflict between these conditions and the additional requirements specified in a certain Plan of Training. All references to Memorandum of Understanding will also apply to Letter of Understanding (LOU) agreements.

2.0 Entrance Requirements

2.1 Entry into the occupation as an apprentice requires:

Indenturing into the occupation by an employer who agrees to provide the appropriate training and work experiences as outlined in the Plan of Training.

2.2 Notwithstanding the above, each candidate must have successfully completed a high school program or equivalent, and in addition may be required to have completed certain academic subjects as specified in a particular Plan of Training. Mature students, at the discretion of the Director of Apprenticeship and Trades Certification, may be registered. A mature student is defined as one who has reached the age of 19 and who can demonstrate the ability and the interest to complete the requirements for certification.

2.3 At the discretion of the Director of Apprenticeship and Trades Certification, credit toward the apprenticeship program may be awarded to an apprentice for previous work experience and/or training as validated through prior learning assessment.

2.4 An Application for Apprenticeship form must be duly completed along with a Memorandum of Understanding as applicable to be indentured into an Apprenticeship. The Memorandum of Understanding must contain signatures of an authorized employer representative, the apprentice and an official representing the Provincial Apprenticeship and Certification Board to be valid.

2.5 A new Memorandum of Understanding must be completed for each change in an employer during the apprenticeship term.

3.0 Probationary Period

The probationary period for each Memorandum of Understanding will be six months or 900 employment credit hours. Within that period the memorandum may be terminated by either party upon giving the other party and the PACB one week notice in writing.

4.0 Termination of a Memorandum of Understanding

After the probationary period referred to in Section 3.0, the Memorandum of Understanding may be terminated by the PACB by mutual consent of the parties involved, or cancelled by the PACB for proper and sufficient cause in the opinion of the PACB, such as that stated inSection14.

5.0 Apprenticeship Progression Schedule, Wage Rates and Advanced Training Criteria

Cabinetmaker - 7200 Hours			
Apprenticeship Level and Wages			
Level	Wage Rate	Requirements for Progression to Next Level	Next Level
1st	60%	▪ Completion of Pre-Employment training ▪ Registration as an apprentice ▪ Minimum 1800 hours of combined relevant work experience and training	2nd Year
2nd	70%	▪ Completion of Level II training ▪ Pass Level II exam* ▪ Minimum 3600 hours of combined relevant work experience and training	3rd Year
3rd	80%	▪ Relevant work experience totaling 5400 hours or more	4th Year
4th	90%	▪ Completion of Level III training ▪ Pass Level III exam* ▪ Minimum 7200 hours of combined relevant work experience and training ▪ Sign-off of all workplace skills in apprentice logbook ▪ Pass certification exam	Journeyperson Certification

Wage Rates

- Rates are percentages of the prevailing journeyperson's wage rate in the place of employment of the apprentice.
- Rates must not be less than the wage rate established by the Labour standards Act (1990), as now in force or as hereafter amended, or by other order, as amended from time to time replacing the first mentioned order.
- Rates must not be less than the wage rate established by any collective agreement which may be in force at the apprentice's workplace.
- Employers are free to pay wage rates above the minimums specified.

Level Exams

- This program may not currently contain Level exams, in which case this requirement will be waived until such time as Level exams are available.

Cabinetmaker - 7200 Hours		
Class Calls (After Apprenticeship Registration)		
Call Level	Requirements for Class Call	Hours Awarded for In-School Training
Direct Entry Apprentice: PLA & / or Level 1	▪ Minimum of 1000 hours of relevant work experience ▪ Prior Learning Assessment (PLA) at designated college (if applicable)	To be determined by the number of courses completed after each class call
Level 2	▪ Minimum of 3000 hours of relevant work experience and training	240
Level 3	▪ Minimum of 7000 hours of relevant work experience and training	240

Direct Entry Apprentice
- Must complete Level 1 courses through PLA and / or in school training.
- Level 1 training is to be completed via class calls; up to 16 weeks of training per calendar year.
- Must attend in-school training until Level 1 is complete before attending Levels 2 or 3

Class calls at Minimum Hours
- Class calls may not always occour at the minimum hours indicated. Some variation is permitted to allow for the availability of training resources and apprentices.

6.0 Tools

Apprentices shall be required to obtain their own hand tools applicable for the designated occupation of registration or tools as specified by the PACB.

7.0 Periodic Examinations and Evaluation

7.1 Every apprentice shall submit to such occupational tests and examinations as the PACB shall direct. If after such occupational tests and examinations the apprentice is found to be making unsatisfactory progress, his/her apprenticeship level and rate of wage shall not be advanced as provided in Section 5 until his/her progress is satisfactory to the Director of Apprenticeship and Trades Certification and his/her date of completion shall be deferred accordingly. Persistent failure to pass required tests shall be a cause for revocation of his/her Memorandum of Understanding.

7.2 Upon receipt of reports of accelerated progress of the apprentice, the PACB may shorten the term of apprenticeship and advance the date of completion accordingly.

7.3 For each and every course, a formal assessment is required for which 70% is the pass mark. A mark of 70% must be attained in both the theory examination and

the practical project assignment, where applicable as documented on an official transcript.

7.4 Course credits may be granted through the use of a PACB approved matrix which identifies course equivalencies between designated trades and between current and historical Plans of Training for the same trade.

8.0 Granting of Certificates of Apprenticeship

Upon the successful completion of apprenticeship, the PACB shall issue a Certificate of Apprenticeship.

9.0 Hours of Work

Any hours employed in the performance of duties related to the designated occupation will be credited towards the completion of the term of apprenticeship. Appropriate documentation of these hours must be provided.

10.0 Copies of the Registration for Apprenticeship

The Director of Apprenticeship and Trades Certification shall provide copies of the Registration for Apprenticeship form to all signatories to the document.

11.0 Ratio of Apprentices to Journeypersons

Under normal practice, the ratio of apprentices to journeypersons shall not exceed two apprentices to every one journeyperson employed. Other ratio arrangements would be determined and approved by the PACB.

12.0 Relationship to a Collective Bargaining Agreement

Where applicable in Section 5 of these conditions, Collective Agreements take precedence.

13.0 Amendments to a Plan of Apprenticeship Training

A Plan of Training may be amended at any time by the PACB.

14.0 Employment, Re-Employment and Training Requirements

14.1 The Plan of Training requires apprentices to regularly attend their place of employment.

14.2 The Plan of Training requires apprentices to attend training for that occupation as prescribed by the PACB.

14.3 Failure to comply with Sections 14.1 and/or 14.2 will result in cancellation of the Memorandum of Understanding. Apprentices may have their MOUs reinstated by the PACB but would be subject to a commitment to complete the entire program as outlined in the General Conditions of Apprenticeship. Permanent cancellation in the said occupation is the result of non-compliance.

14.4 Cancellation of the Memorandum of Understanding to challenge journeyperson examinations, if unsuccessful, would require an apprentice to serve a time penalty of two (2) years before reinstatement as an apprentice or qualifying to receive a class call to training as a registered Trade Qualifier. Cancellation must be mutually agreed upon by the employer and the apprentice.

14.5 An employer shall ensure that each apprentice is under the direct supervision of an approved journeyperson supervisor who is located at the same worksite as the apprentice, and that the apprentice is able to communicate with the journeyperson with respect to the task, activity or function that is being supervised.

14.6 Under the Plan of Training the employer is required to keep each apprentice employed as long as work is available, and if the apprentice is laid off due to lack of work, to give first opportunity to be hired before another is hired.

14.7 The employer will permit each apprentice to attend training programs as prescribed by the PACB.

14.8 Apprentices who cannot acquire all the workplace skills at their place of employment will have to be evaluated in a simulated work environment at a PACB authorized training institution and have sign-off done by instructors to meet the requirements for certification.

15.0 Appeals to Decisions Based on Conditions Governing Apprenticeship Training

Persons wishing to appeal any decisions based on the above conditions must do so in writing to the Minister of Immigration, Skills and Labour within 30 days of the decision.

E. Requirements for Red Seal Endorsement

1. Evidence the required work experiences outlined in this Plan of Training have been obtained. This evidence must be in a format clearly outlining the experiences and must be signed by an appropriate person or persons attesting that these experiences have been obtained to the level required.

2. Successful completion of all required courses in the program.

3. A combination of training from an approved training program and suitable work experience totaling 7200 hours.

   Or

   A total of 10800 hours of suitable work experience.

4. Completion of a National Red Seal examination, to be set at a place and time determined by the Apprenticeship and Trades Certification Division.

F. Roles and Responsibilities of Stakeholders in the Apprenticeship Process

The apprenticeship process involves a number of stakeholders playing significant roles in the training of apprentices. This section outlines these roles and the responsibilities resulting from them.

The Apprentice:

- completes all required technical training courses as approved by the PACB.
- finds appropriate employment.
- completes all required work experiences in combination with the required hours.
- ensures work experiences are well documented.
- approaches apprenticeship training with an attitude and commitment that fosters the qualities necessary for a successful career as a qualified journeyperson.
- obtains the required hand tools as specified by the PACB for each period of training of the apprenticeship program.

The Employer:

- provides high quality work experiences in an environment conducive to learning.
- remunerates apprentices as set out in the Plan of Training or Collective Agreements.
- provides feedback to training institutions, Apprenticeship and Trades Certification Division and apprentices in an effort to establish a process of continuous quality improvement.
- where appropriate, releases apprentices for the purpose of returning to a training institution to complete the necessary technical courses.
- ensures work experiences of the apprentice are documented.
- ensures a certified journeyperson is currently on staff in the same trade area as the apprentice and whose certification is recognized by the NL Department of Immigration, Skills and Labour.

The Training Institution:

- provides a high quality learning environment.
- provides the necessary student support services that will enhance an apprentice's ability to be successful.
- participates with other stakeholders in the continual updating of programs.

The Apprenticeship and Trades Certification Division:

- establishes and maintains program advisory committees under the direction of the PACB.
- promotes apprenticeship training as a viable career option to prospective apprentices and other appropriate persons involved, such as career guidance counsellors, teachers, parents, etc.
- establishes and maintains a protocol with training institutions, employers and other appropriate stakeholders to ensure the quality of apprenticeship training programs.
- ensures all apprentices are appropriately registered and records are maintained as required.
- schedules all necessary technical training periods for apprentices to complete requirements for certification.
- administers Level, provincial and interprovincial examinations.

The Provincial Apprenticeship and Certification Board:

- sets policies to ensure the provisions of the *Apprenticeship and Certification Act (1999)* are implemented.
- ensures advisory and examination committees are established and maintained.
- accredits institutions to deliver apprenticeship training programs.
- designates occupations for apprenticeship training and/or certification.