Plan of Training

CABINETMAKER

Newfoundland Labrador

Government of Newfoundland and Labrador
Department of Education
Institutional and Industrial Education Division

March 2012

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Apprenticeship and Trades Certification Division

Approved by:

Chairperson, Provincial Apprenticeship and Certification Board

Date: March 13, 2012

Preface

This Apprenticeship Standard is based on the 2012 edition of the National Occupational Analysis for the Cabinetmaker trade.

This document describes the curriculum content for the Cabinetmaker apprenticeship training program and outlines each of the technical training units necessary for the completion of apprenticeship.

Acknowledgements

Advisory committees, industry representatives, instructors and apprenticeship staff provided valuable input to the development of this Apprenticeship Curriculum Standard. Without their dedication to quality apprenticeship training, this document could not have been produced.

We offer you a sincere thank you.

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Profile Chart

OCCUPATIONAL SKILLS			
AK1100 Blueprint I - Basic	AK1120 Blueprint II - Intermediate	AK1130 Construction Safety	AK1200 Hand Tools
AK1210 Fasteners and Adhesives	AK1220 Materials	AK1230 Portable Power Tools	AK1240 Common Stationary Equipment
AK1270 Specialty Stationary Equipment	AK1290 Basic Casework	AK1301 Wood Finishing I	AK1330 Installation procedures
AK2100 Blueprint III (Advanced)	AK2202 Advanced Casework and Furniture Design	TS1510 Occupational Health and Safety	TS1520 WHMIS
MACHINING			
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AK1270 Specialty Stationary Equipment	AK1282 High Production Equipment	AK1290 Basic Casework	AK1301 Wood Finishing I
FORMING AND LAMINATING			
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AK1210 Fasteners and Adhesives	AK1220 Materials	AK1260 Laminating	AK2202 Advanced Casework and Furniture Design

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AK1210 Fasteners and Adhesives	AK1250 Join Fabrication and Assembly	AK1290 Basic Casework	AK2202 Advanced Casework and Furniture Design
FINISHING			
AK1200 Hand Tools	AK1220 Materials	AK1301 Wood Finishing I	AK1302 Wood Finishing II
TS1520 WHMIS			
ON-SITE ASSEMBLY AND INSTALLATION			
AK1100 Blueprint I – Basic	AK1200 Hand Tools	AK1210 Fasteners and Adhesives	AK1220 Materials
AK1230 Portable Power Tools	AK1250 Joint Fabrication and Assembly	AK1290 Basic Casework	AK1301 Wood Finishing I
AK1330 Installation Procedures	AK2202 Advanced Casework and Furniture Design		
SPECIALIZED OPERATIONS			
AK1200 Hand Tools	AK1210 Fasteners and Adhesives	AK1220 Materials	AK1240 Common Stationary Equipment
AK1250 Joint Fabrication and Assembly	AK1260 Laminating	AK1290 Basic Casework	AK1301 Wood Finishing I
AK1302 Wood Finishing II	AK1310 Stairs	AK1320 Industry Codes and Practices	AK2202 Advanced Casework and Furniture Design

NOA Comparison Table

NOA Sub-task		Plan of Training Unit	
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

NOA Sub-task		Plan of Training Unit	
3.04	Performs layout of cabinets, furniture and architectural milllwork	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 Block 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
		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

NOA Sub-task		Plan of Training Unit	
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
8.03	Clamps pieces together	AK1260	Laminating

NOA Sub-task		Plan of Training Unit	
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	Joint Fabrication and Assembly
11.03	Assembles wood components	AK1290	Basic Casework
11.04	Combines components into final assemblies	AK2202	Advanced Casework and Furniture Design
		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

NOA Sub-task		Plan of Training Unit	
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
		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

NOA Sub-task		Plan of Training Unit	
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	AK1290	Basic Casework
17.03	Finalizes installation of architectural millwork products	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
		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 l		

NOA Sub-task		Plan of Training Unit	
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

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.

The order of course delivery within each block 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.

Entry Level Courses - Block 1			
NL Course No.	**Course Name**	**Hours**	**Prerequisites**
TS1510	Occupational Health and Safety	6	
TS1520	WHMIS	6	
TS1530	Standard First Aid	14	
AK1130	Construction Safety	40	TS1520, TS1530
AK1100	Blueprint I - Basic	75	
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

Entry Level Courses - Block 1			
NL Course No.	**Course Name**	**Hours**	**Prerequisites**
AK1290	Basic Casework	75	AK1120
AK1301	Wood Finishing I	80	AK1230
AK1120	Blueprint Il (Intermediate)	60	AK1100
AK1320	Industry Codes and Practices	45	AK1130
AK1330	Installation Procedures	45	AK1320, AK1290
AP1101	Introduction to Apprenticeship	15	
AM1100	Math Essentials	30	
AM1120	Cabinetmaker Math Fundamentals	30	AM1100
CM2160	Communications Essentials	45	
SD1760	Workplace Essentials	45	
MC1060	Computer Essentials	15	
	Total Hours	**941**	

Required Work Experience

Advanced Courses – Block 2			
NL Course NO.	**Course Name**	**Hours**	**Prerequisites**
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

Advanced Courses – Block 3			
NL Course NO.	**Course Name**	**Hours**	**Prerequisites**
AK1282	High Production Equipment	60	AK1270
AK2102	Blueprint IV (CAD)	60	AK2100
AK2202	Advanced Casework and Furniture Design	120	AK1290, AK2100
Total Hours		**240**	

Total Course Credit Hours	**1421**

Entry Level – Block 1

TS1510 Occupational Health and Safety

Learning Outcomes:

- Demonstrate knowledge of identifying how to prevent accidents and illnesses
- Demonstrate knowledge of improving health and safety conditions in the workplace

Duration: 6 Hours

Pre-Requisites: 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 & 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 Systems (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-Requisites: 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
    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 subdivisions in WHMIS
        - general rules for classification
        - class A – compresses 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 make 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 WHMIS label

- supplier label
- workplace label
- other means of identification

ii. responsibilities 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 an 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-Requisites: 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-Requisites: TS1520 – WHMIS
TS1530 – Standard First Aid

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-Requisites: 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-Requisites: AK-1130 Construction Safety

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-Requisites: AK-1200 Hand Tools

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 in terms of:
   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-Requisites: AK1130 Construction Safety

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 in terms of:
    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 relative to:
    i. transmission
    ii. absorption
    iii. reflection

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

36. Describe the standard types of moulding.

Practical Requirements:

Theory only.

AK1230 Portable Power Tools

Learning Outcomes:

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

Duration: 45 Hours

Pre-Requisites: AK1200 Hand Tools

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-Requisites: AK1230 Portable Power Tools

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-Requisites: AK1240 Common Stationary Equipment

Objectives and Content:

1. Describe the principles 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-Requisites: AK1250 Joint Fabrication and Assembly

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 according to:
   i. grades
   ii. finishes
   iii. sizes
   iv. specialties (solid core and acid resistant)

3. Describe the properties and applications of laminates regarding:
   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 relative to:
    i. growth rings and grain direction
    ii. special milling of components

13. Describe the clamping and lay-up systems relative to:
    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 to:
    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-Requisites: AK1120 Blueprint II (Intermediate)

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 in relation to:
   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 location of hardware relative to:
   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

Millwork

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-Requisites: AK1230 Portable Power Tools

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-Requisites: AK1100 Blueprint I - Basic

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 bird's 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 using such concepts as:
    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-Requisites: AK1130 Construction Safety

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:

Theory only.

AK1330 Installation Procedures

Learning Outcomes:

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

Duration: 45 Hours

Pre-Requisites:

	AK1320	Industry Codes and Practices
	AK1290	Basic Casework

Objectives and Content:

1. Identify the accepted heights and spacings 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 the problems associated with installations due to
   i. minor warpages
   ii. imperfect walls and floors
   iii. utilities access
   iv. humidity and temperature

6. Describe procedures for:
   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

AM1100 Math Essentials

Note: It is recommended that AM1100 be delivered in the first semester of the Entry Level training program.

Learning Outcomes:

- Demonstrate knowledge of the numeracy skills required to begin the 2nd level math course.
- 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: 30 Hours

Pre-Requisite(s): None

Objectives and Content:

Wherever possible, the instructor should use trade specific examples to reinforce the course objectives

1. Use multiplication tables from memory.

2. Perform whole number operations.
    i. Read, write, count, round off, add, subtract, multiply and divide whole numbers.

3. Apply the order of operations in math problems.

4. Perform fraction and mixed number operations.
    i. Read, write, add, subtract, multiply and divide fractions.

5. Perform decimal operations.
    i. Read, write, round off, add, subtract, multiply and divide decimals.

6. Perform percent/decimal/fraction conversion and comparison.
    i. Convert between fractions, decimals and percents.

7. Perform percentage operations.
    i. Read and write percentages
    ii. Calculate base, rates and percentages

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

9. Use the imperial measurement system in math problems.
    i. identify units of measurement for
        - Length
        - Mass
        - Area
        - Volume
        - Capacity

10. Use the metric measurement system in math problems.
    i. identify units of measurement for
        - Length
        - Mass
        - Area
        - Volume
        - Capacity

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.

AM1120 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: 30 Hours

Pre-Requisite(s): AM1100 Math Essentials

Objectives and Content:

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

1. Employ percent/decimal/fraction conversion and comparison in trade specific situations.

2. Apply ratios and proportions to trade specific problems.

3. Use the Imperial Measurement system in trade specific applications.

4. Use the Metric Measurement system in trade specific applications.

5. Complete Imperial/Metric conversions in trade specific situations

i. convert between imperial and metric measurements
ii. convert to another unit within the same measurement system

6. Manipulate formulas using cross multiplication, dividing throughout, elimination, and substitution to solve trade specific problems, such as:
    i. Right angle triangles
    ii. Area
    iii. Volume
    iv. Perimeter

7. Perform calculations involving geometry that are relevant to the trade, such as:
    i. angle calculations
    ii. circle calculations

8. Use practical math skills to complete administrative trade tasks:
    i. material estimation
    ii. material costing
    iii. time & labour estimates
    iv. taxes & surcharges
    v. markup & projecting revenue

Notes:

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.

2. This course has been designated as 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.

CM2160 Communication Essentials

Learning Outcomes:

- Demonstrate knowledge of the importance of well-developed writing skills in the workplace and in career development.
- Demonstrate knowledge of the purpose of various types of workplace correspondence.
- Demonstrate knowledge of the principles of effective workplace writing.
- Demonstrate knowledge of standard formats for letters and memos.
- Demonstrate knowledge of principles related to writing effective letters and memos.
- Demonstrate the ability to prepare and deliver an oral presentation.
- Demonstrate knowledge of the importance of effective interpersonal skills in the workplace.

Duration: 45 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 the principles for writing clear, concise, complete sentences and paragraphs which adhere to the conventions of grammar, punctuation, and mechanics.

2. Identify the principles of effective workplace writing.
    i. Describe the value of well-developed writing skills to career success
    ii. Discuss the importance of tone, and language or word choice in workplace communication, regardless of the circumstances
    iii. Demonstrate an awareness of cultural differences when preparing workplace correspondence
    iv. Describe the writing process as it applies to workplace communication
        - planning
        - writing
        - editing/revising
    v. Identify the parts of a business letter and memo, and when each should be used in the workplace
    vi. Identify the standard formats for business letters and memos
    vii. Identify guidelines for writing sample letters and memos which convey:
        - acknowledgment
        - routine request
        - routine response
        - complaint
        - refusal
        - persuasive request
        - letters of appeal

3. Identify types of informal workplace documents.
    i. Identify types & purposes of reports
        - Incident
        - Process
        - Progress
    ii. Identify common trade specific forms
    iii. Describe primary and secondary methods used to gather information
    iv. Discuss the importance of accuracy and completeness in reports and forms

4. Identify the elements of presentations used in the workplace.
    i. Identify presentation types
        - impromptu
        - informative
        - demonstration

- persuasive

ii. Identify the components of an effective presentation
   - eye contact
   - body language
   - vocal qualities
   - audience analysis
   - multimedia tools
   - keeping on topic

5. Demonstrate an understanding of interpersonal communications in the workplace.
   i. Identify listening techniques
   ii. Demonstrate an understanding of group dynamics
   iii. Describe the importance of contributing information and expertise in the workplace
   iv. Describe the importance of respectful and open communication in the workplace
   v. Identify methods to accept and provide feedback in a constructive and considerate manner
   vi. Explain the role of conflict in a group to reach solutions

6. Identify acceptable workplace uses of communication technologies

   i. Cell / Smart Phone etiquette
   ii. Voice mail
   iii. E-mail
   iv. Teleconferencing / videoconferencing for meetings and interviews
   v. Social networking
   vi. Other emerging technologies

Practical Requirements:

1. Write well-developed, coherent, unified paragraphs.

2. Write sample letters and memos.

3. Write one short informal report.

4. Complete a selection of at least 3 trade-related forms.

5. Deliver an effective oral presentation.

SD1760 Workplace Essentials

Note: It is recommended that SD1760 be delivered in the second half of the Entry Level training program.

Learning Outcomes:

- Demonstrate knowledge of workplace essentials in the areas of meetings, unions, workers compensation, workers' rights, and human rights
- Demonstrate knowledge of good customer service practices
- Demonstrate knowledge of effective job search techniques

Duration: 45 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 common practices related to workplace meetings

    i. identify and discuss meeting format and preparation required for a meeting
    ii. explain the purpose of an agenda
    iii. explain the expected roles, responsibilities, and etiquette of meeting participants

2. Define unions and identify their role in the workplace

    i. Identify the purpose of unions
    ii. Identify a common union structure

iii. Identify the function of unions in this trade

3. Demonstrate an understanding of the Worker's Compensation process.
   i. Describe the aims, objectives, regulations and benefits of the Workplace Health, Safety and Compensation Commission
   ii. Explain the role of the Workers Advisor
   iii. Explain the internal review process

4. Demonstrate an understanding of worker's rights.
   i. Define labour standards
   ii. Identify 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. Examine the Human Rights Code and explain the role of the Human Rights Commission
   ii. Define harassment in various forms and identify strategies for prevention
      - Direct
      - Systemic
      - Adverse effect
   iii. Identify gender and stereotyping issues in the workplace
   iv. Define basic concepts and terms related to workplace diversity including age, race, culture, religion, socio-economic status, and sexual orientation.

6. Demonstrate an understanding of quality customer service
   i. Explain why quality service is important
   ii. Identify barriers to quality customer service
   iii. Identify customer needs & common methods for meeting them
   iv. Identify and discuss the characteristics & importance of a positive attitude
   v. Identify the importance of demonstrating good communication skills including body language, listening, questioning, and when using electronic communication devices.
   vi. Identify techniques for interacting with challenging customers to address complaints and resolve conflict.

7. Demonstrate an understanding of effective job search techniques
    i. Identify and explain employment trends, opportunities, and sources of employment
    ii. Identify and discuss essential skills for the trades as outlined by Human Resources and Skills Development Canada
    iii. Review job ads and identify the importance of fitting qualifications to job requirements.
    iv. Identify the characteristics of effective resumes, the types of resumes, and principles of resume formatting
    v. Identify the characteristics of an effective cover letter
    vi. Identify the components of a portfolio, and discuss the value of establishing and maintaining a personal portfolio.
    vii. Identify the common characteristics of the job interview process:
        - Pre-interview preparation
        - Interview conduct
        - Post-interview follow up

Practical Requirements:

1. Create a resume.

2. Create a cover letter.

3. Participate in a mock job interview

MC1060 Computer Essentials

Learning Outcomes:

- Demonstrate knowledge of computer systems and their operation.
- Demonstrate knowledge of popular software packages and their applications.
- Demonstrate knowledge of security issues related to computers.
- Demonstrate knowledge of the software used to complete apprenticeship block exams

Duration: 15 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 the major external components of a microcomputer system.
    i. Input devices
    ii. Output devices
    iii. Central control unit

2. Use operating system software
    i. Start and quit a program
    ii. Use the help function
    iii. Use the find function
    iv. Maximize and minimize a window
    v. Use the task bar
    vi. Adjust desktop settings such as screen savers, screen resolution, and backgrounds
    vii. Shut down a computer

3. 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

4. Use word processing software to create documents
    i. Enter text
    ii. Indent and tab text
    iii. Change text attributes (bold, underline, font, etc.)
    iv. Change layout format (margins, alignment, line spacing)
    v. Spell check and proofread
    vi. Edit text
    vii. Save document
    viii. Print document
    ix. Close document
    x. Retrieve documents

5. Use spreadsheet software to create spreadsheets
    i. Enter data in cells
    ii. Create formulas to add, subtract, multiply and divide
    iii. Save spreadsheet
    iv. Print spreadsheet
    v. Close spreadsheet
    vi. Retrieve spreadsheet

6. Access the Internet.
    i. Access websites using the world wide web(www)
    ii. Identify examples of web browsers
    iii. Use search engines with common searching techniques
    iv. Describe security issues

7. Use electronic mail.
   i. Describe e-mail etiquette
      - Grammar and punctuation
      - Privacy and legal issues when sharing and forwarding e-mail
      - Work appropriate content
      - Awareness of employer policies
   ii. Manage e-mail using the inbox, sent, and deleted folders
   iii. Send an e-mail message with attachment(s)
   iv. Print e-mail

8. Access the Desire 2 Learn (D2L) website used to deliver apprenticeship block exams
   i. Log in to website
   ii. Select sample courses and tests
   iii. Complete a sample exam
   iv. Submit the exam for grading
   v. Log out of the website

AP1101 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: 15 hours

Pre-Requisite(s): None

Objectives and Content:

1. Define the following terms:
    i. Apprenticeship
    ii. Apprentice vs. Registered Apprentice
    iii. Journeyperson vs. Certified Journeyperson
    iv. Certificate of Apprenticeship
    v. Certificate of Qualification
    vi. Recognition of Prior Learning
    vii. Dual certification

2. Explain the apprenticeship system in Newfoundland and Labrador and the roles and responsibilities of those involved.
    i. Registered apprentice
    ii. Training institution
    iii. Employer
    iv. Journeyperson
    v. Department of Advanced Education and Skills
        - Industrial Training Section
        - Standards and Curriculum Section
    vi. Provincial Trade Advisory Committees

vii. Provincial Apprenticeship and Certification Board

3. Identify the Conditions Governing Apprenticeship.

4. Describe the training and educational requirements.
   i. Pre-employment (entry level) training
   ii. Block release
   iii. On-the-job

5. Explain the steps in the registered apprenticeship process.
   i. Criteria for eligibility
      - Entrance Requirements as per Conditions of Apprenticeship
      - Employment
   ii. Registration Process
      - Application requirements
   iii. Memorandum of Understanding
      - Probation period
      - Cancellation
   iv. Record of Occupational Progress (Logbook)
      - Signing off skills
      - Recording hours
      - Updating PDO on progress
   v. Class Calls
      - Schedule
      - EI Eligibility
      - Direct Entry
      - Advanced level
   vi. Block Exams
   vii. Progression
      - Schedule
      - Wage rates
   viii. Cancellation of Apprenticeship
   ix. Practical Examinations
   x. Provincial and Interprovincial examinations
   xi. Certification
      - Certification of Apprenticeship
      - Certification of Qualification
      - Provincial certification
      - Interprovincial Red Seal endorsement

6. Explain the Interprovincial Standards Red Seal Program.
    i. Designated Red Seal trade
    ii. The National Occupational Analysis (NOA)
    iii. Interprovincial (IP) Red Seal Endorsement Examination
    iv. Relationship of NOA to IP Examination
    v. Qualification recognition and mobility

7. Identify the current financial incentives available to apprentices.

8. Explain the NL apprenticeship and trades certification division's out-of- province apprenticeship policy.

Practical Requirements:

1. Use the Provincial Apprenticeship and Trades Certification web site at www.gov.nl.ca/app to:
    i. Locate, download, and complete the Application for Apprenticeship and Memorandum of Understanding (MOU).
    ii. Locate, download, and complete the Out of Province registration forms
        Application for Apprenticeship (out of province)
        Letter of Understanding (LOU)
        Acceptance of Conditions Letter
    iii. Locate, download, and complete the Work Experience Credits form.
    iv. Identify the locations of all Industrial Training offices.
    v. Locate and review the following learning resources relevant to the trade:
        - Study Guide
        - Exam Preparation Guide
        - Plan of Training

2. Use a log book for this trade to:
    i. Identify the hours for the trade (in-school and on-the-job)
    ii. Identify the number of blocks
    iii. Identify the courses in each block
    iv. Identify the workplace skills to be completed and verified

3. Use the Red Seal Web site, http://www.red-seal.ca to retrieve the National Occupational Analyses (NOA) for this trade.
    i. Identify the following components of the NOA:
        - Trends
        - Scope
        - Key Competencies
        - Blocks
        - Tasks
        - Subtasks
        - Pie Charts
        - Table of Specifications

Block 2

AK1270 Specialty Stationary Equipment

Learning Outcomes:

- Demonstrate the ability to operate specialty stationary equipment.

Duration: 60 Hours

Pre-Requisites: AK1260 Laminating

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-Requisites: AK1301 Wood Finishing I

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 related to:
    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-Requisites: AK1120 Blueprint II (Intermediate)

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-Requisites: AK1120 Blueprint II (Intermediate)

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.

Block 3

AK1282 High Production Equipment

Learning Outcomes:

- Demonstrate the ability to operate high production equipment.

Duration: 60 Hours

Pre-Requisites: AK1270 Specialty Stationary Equipment

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-Requisites: AK2100 Blueprint III (Advanced)

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.
   ii. 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-Requisites: AK1290 Basic Casework
AK2100 Blueprint III (Advanced)

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 relative to:
    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 with regard to:
    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 including:
    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

13. Describe construction for sloped and contoured casework.
    i. doors
    ii. drawers

iii. hardware
iv. joints

Architectural Millwork

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

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

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

17. Describe the procedures for millwork.
    i. preparation and layout
    ii. selection of hardware
    iii. installation
    iv. touch up and finish

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

Solid Surfaces

19. 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.

APPENDICES

APPENDIX A: 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 certain Plan of Training.

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 particular Plan of Training. Mature students, at the discretion of the Director of Apprenticeship and Trade 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 Trade 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.

3.0 Probationary Period

The probationary period for each Memorandum of Understanding will be six months. 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.

5.0 Apprenticeship Progression Schedule and Wage Rates

Cabinetmaker
7200 Hours

APPRENTICESHIP LEVEL AND WAGES

Year	Wage Rate At This Level	Requirements for progression to next level of apprenticeship	When requirements are met, the apprentice will progress to…
1st	60 %	▪ Completion of Block 1 (pre-employment) training ▪ Pass block 1 exam (if applicable) ▪ Relevant work experience totaling 1800 hours or more	2nd Year
2nd	70%	▪ Completion of Block 2 training ▪ Pass block 2 exam (if applicable) ▪ Relevant work experience totaling 3600 hours or more	3rd Year
3rd	80%	▪ Relevant work experience totaling 5400 hours or more	4th Year
4th	90%	▪ Completion of Block 3 training ▪ Relevant work experience totaling 7200 hours or more ▪ 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.

Block Exams

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

Cabinetmaker 7200 Hours		
CLASS CALLS		
Call Level	Requirements for Class Call	Hours awarded for In-School Training
Direct Entry Apprentice: PLA & / or Block 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
Block 2	▪ Minimum of 3000 hours of relevant work experience and training	240
Block 3	▪ Minimum of 7000 hours of relevant work experience and training	240

Direct Entry Apprentice

- Must complete block 1 courses through PLA and / or in school training.
- Block 1 training is to be completed via class calls; up to 16 weeks of training per calendar year.
- Must attend in-school training until Block 1 is complete before attending Blocks 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 hand tools as and when 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 rate of wage shall not be advanced as provided in Section 5 until his/her progress is satisfactory to the Director of Apprenticeship and Trade 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 Trade Certification shall provide copies of the Registration for Apprenticeship form to all signatories to the document.

11.0 Ratio of Apprentices to Journeypersons

The ratio of apprentices to journeypersons shall not exceed two apprentices to every one journeyperson employed, with the condition that one of these be a final year apprentice.

12.0 Relationship to a Collective Bargaining Agreement

Collective agreements take precedence over the conditions outlined in the Plan of Training.

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 regularly attend training programs 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. An apprentice will be required to pay a reinstatement fee. 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 registering as a Trade Qualifier.

14.5 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.

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

14.7 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 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 Education within 30 days of the decision.

APPENDIX B: 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 program.

   Normally, a combination of training from an accredited training program and suitable work experience totalling 7200 hours.

   Or

   A total of 9000 hours of suitable work experience.

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

4. Payment of the appropriate examination fee.

APPENDIX C: Roles and Responsibilities of Stakeholders

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 Trade 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.

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 Trade 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 block, provincial and inter-provincial 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.