

**A PLAN OF TRAINING  
FOR  
CARPENTER  
OCCUPATION**

**Approved by  
Provincial Apprenticeship and Certification Board**

**July, 1996**  
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## Foreword

Apprenticeship training in the Province of Newfoundland and Labrador is undergoing considerable change. This change is prompted by the need to keep pace with technological changes in industry, the need to be competitive, and the desire to be efficient and effective in meeting the needs of the apprentice. We feel that this training plan will lay the groundwork to meet both the demands of industry and the needs of the apprentice.

The plan that follows is a comprehensive one. It recognizes that apprenticeship training begins when a student first registers at a training institution, or signs a Contract of Apprenticeship with an employer, and continues until such time as the apprentice has completed all of the required technical training and has received the required industry experiences necessary to write an interprovincial examination. Passing this examination will result in the apprentice receiving Red Seal Certification which gives the journeyman national mobility of qualifications. This plan also recognizes the need to provide flexible access to training based on the needs of the employer and the apprentice while at the same time recognizing the end goal is to complete the requirements for Red Seal Certification.

It is realized that change in all facets of education and industry is continuous and sometimes rapid. This change will necessitate the review of this document on a continuous basis to ensure that current needs of industry and apprentices are being satisfied. Through a process of accreditation, regular input from industry advisory committees, as well as input from those involved in the administration and delivery of the training, we are confident that residents of our province who elect to pursue an apprenticeable occupation as a career choice will receive high quality training and thus will be prepared to compete for jobs worldwide.

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Chair  
Provincial Apprenticeship and Certification Board

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Minister  
Youth Services & Post-Secondary Education

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## **CONDITIONS GOVERNING APPRENTICESHIP TRAINING**

### **1.0 GENERAL**

The following general conditions will apply to all apprenticeship training programs approved by the Provincial Apprenticeship and Certification Board in accordance with the Apprenticeship Training and Certification Act. Where an occupation requires additional conditions, these will be noted in the specific plan of training for that occupation. In no case should there be a conflict between these conditions and the additional requirements specified in certain plans of training.

### **2.0 ENTRANCE REQUIREMENTS**

2.1 Entry into the occupation as an apprentice requires:

The completion of designated first year courses specific to the occupation

OR

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

OR

Enrolment in a program of studies that includes all entry and advanced level skills and required work experiences as approved by the Provincial Apprenticeship and Certification Board.

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 plans of training. Mature students, at the discretion of the Director of Institutional and Industrial Education, 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 Institutional and Industrial Education, credit towards the apprenticeship program may be awarded to an apprentice for previous work experience and/or training as validated through prior learning assessment.

2.4 A Registration 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 Provincial Apprenticeship and Certification Board one week notice in writing.

### **4.0 TERMINATION OF A MEMORANDUM OF UNDERSTANDING**

After the probationary period referred to in Section 3.0 herein, the memorandum of understanding may be terminated by the Board by mutual consent of the parties thereto or cancelled by the Board for proper and sufficient cause in the opinion of the Board.

5.0 APPRENTICESHIP PROGRESSION SCHEDULE AND WAGE RATES

5.1 Progression Schedule

<b>7200 Hour Programs</b>	<b>Requirements for Progression</b>	<b>Progress To</b>
First Year Apprentice	25% of Course Credit Hours, <b>Plus</b> relevant work experience totaling 1800 hours	Second Year
Second Year Apprentice	50% of Course Credit Hours, <b>Plus</b> relevant work experience totaling 3600 hours	Third Year
Third Year Apprentice	75% of Course Credit Hours, <b>Plus</b> relevant work experience totaling 5400 hours	Fourth Year
Fourth Year Apprentice	100% of Course Credit Hours, <b>Plus</b> completion and sign-off of workplace skills required for certification totaling 7200 hours	Write Certification Examination
<b>5400 Hour Programs</b>	<b>Requirements for Progression</b>	<b>Progress To</b>
First Year Apprentice	33% of Course Credit Hours, <b>Plus</b> relevant work experience totaling 1800 hours	Second Year
Second Year Apprentice	66% of Course Credit Hours, <b>Plus</b> relevant work experience totaling 3600 hours	Third Year
Third Year Apprentice	100% of Course Credit Hours, <b>Plus</b> completion and sign-off of workplace skills required for certification totaling 5400 hours	Write Certification Examination

<b>4800 Hour Programs</b>	<b>Requirements for Progression</b>	<b>Progress To</b>
First Year Apprentice	33% of Course Credit Hours, <b>Plus</b> relevant work experience totaling 1600 hours	Second Year
Second Year Apprentice	66% of Course Credit Hours, <b>Plus</b> relevant work experience totaling 3200 hours	Third Year
Third Year Apprentice	100% of Course Credit Hours, <b>Plus</b> completion and sign-off of workplace skills required for certification totaling 4800 hours	Write Certification Examination

5.2 For the duration of each Apprenticeship Training Period, the apprentice, who is not covered by a collective agreement, shall be paid a progressively increased schedule of wages which shall not be less than:

<b>Program Duration</b>	<b>Wage Rates</b>		<b>Comments</b>
<b>7200 Hours</b>	1 <sup>st</sup> Year	55%	These wage rates are percentages of the prevailing journey person's wage rate in the place of employment of the apprentice. No apprentice shall be paid less than the wage rate established by the Labour Standards Act (1988), as now in force or as hereafter amended, or by other Order, as amended from time to time replacing the first mentioned Order.
	2 <sup>nd</sup> Year	65%	
	3 <sup>rd</sup> Year	75%	
	4 <sup>th</sup> Year	90%	
<b>5400 Hours and 4800 Hours</b>	1 <sup>st</sup> Year	55%	
	2 <sup>nd</sup> Year	70%	
	3 <sup>rd</sup> Year	85%	
4000 (Hairstylist) - The apprentice shall be paid no less than the minimum wage for hours worked and a commission agreed upon between the apprentice and the employer.			

## 6.0 TOOLS

Apprentices shall be required to obtain hand tools as and when specified by the Board.

## 7.0 PERIODIC EXAMINATIONS

7.1 Every apprentice shall submit to such occupational tests and examinations as the Board 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 Institutional and Industrial Education 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 Board may shorten the term of apprenticeship and advance the date of completion accordingly.

## 8.0 GRANTING OF CERTIFICATES OF APPRENTICESHIP

Upon the successful completion of apprenticeship, the Board 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 Institutional and Industrial Education 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 normally shall not exceed one apprentice to every one journeyperson employed. Exceptions for specific occupations may occur with the approval of the Provincial Apprenticeship and Certification Board.

## 12.0 RELATIONSHIP OF THE PLAN OF TRAINING 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 Provincial Apprenticeship and Certification Board.

### 14.0 EMPLOYMENT, RE-EMPLOYMENT AND TRAINING REQUIREMENTS

- 14.1 The plan of training requires Apprentices to attend regularly their place of employment.
- 14.2 The plan of training requires Apprentices to regularly attend training programs for that occupation as prescribed by The Provincial Apprenticeship and Certification Board.
- 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 M.O.U.'s reinstated by the Provincial Apprenticeship and Certification Board but would be subject to a commitment to complete the entire program as outlined in the General Conditions of Apprenticeship. Permanent cancellation in the said occupation is the result of non-compliance.
- 14.4 Cancellation of the Memorandum of Understanding to challenge journey person 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 opportunity to be re-employed before another is hired.
- 14.6 The employer will permit each apprentice to attend regularly training programs as prescribed by the Provincial Apprenticeship and Certification Board.
- 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 Youth Services and Post-Secondary Education within 30 days of the decision.



REGULATIONS SPECIFIC TO THE CARPENTER OCCUPATION

1. RATIO OF APPRENTICES TO JOURNEYPERSONS

The ratio of apprentices to journeypersons shall not exceed one apprentice to every one journeypersons employed.

REQUIREMENTS FOR RED SEAL CERTIFICATION  
IN THE CARPENTER OCCUPATION

1. Evidence that the required work experiences outlined in this plan of training has been obtained. This evidence must be in a format that clearly outlines the experiences and a signature (s) of an appropriate person(s) attesting that these experiences have been obtained to the level required.
2. Normally have a combination of training from an accredited training program and suitable work experience totalling 7200 hours

Or

Have 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 Industrial Training Division of the Department of Youth Services and Post-Secondary Education.
4. Pay the appropriate examination fee.

## ROLES AND RESPONSIBILITIES OF STAKEHOLDERS IN THE APPRENTICESHIP PROCESS

Apprenticeship process involves a number of stakeholders playing significant roles in the training of apprentices. This section captures, in a broad sense, these roles and the responsibilities that result from them.

### **Apprentices**

- ▶ to complete all required technical training courses as approved by the Provincial Apprenticeship and Certification Board.
- ▶ to find appropriate employment
- ▶ to complete all required work experiences in combination with the required hours.
- ▶ to ensure that the work experiences are well documented
- ▶ to approach apprenticeship training with an attitude and commitment that fosters the qualities necessary for a successful career as a qualified journeyman.
- ▶ to obtain the required hand tools as specified by the Board for each period of training of the apprenticeship program.

### **Employers**

- ▶ to provide high quality work experiences in an environment that is conducive to learning.
- ▶ to remunerate apprentices as set out in the Apprenticeship Act or Collective Agreements.
- ▶ to provide feedback to Training Institutions, Industrial Training Division and Apprentices in an effort to establish a process of continuous quality improvement.
- ▶ where appropriate, to release apprentices for the purpose of returning to a training institution to complete the necessary technical courses.
- ▶ to ensure that work experiences of the apprentices are documented

### **Training Institutions**

- ▶ to provide a high quality learning environment.
- ▶ to provide the necessary student support services that will enhance an apprentices ability to be successful.
- ▶ to participate with other stakeholders in the continual updating of programs.

### **Industrial Training Division**

- ▶ to establish and maintain program advisory committees under the direction of the Provincial Apprenticeship and Certification Board.
- ▶ to promote apprenticeship training as a viable career option to prospective apprentices and other appropriate persons involved such as career guidance counsellor, teachers, parents, etc.
- ▶ to establish and maintain a protocol with training institutions, employers and other appropriate stakeholders to ensure the quality of apprenticeship training programs.
- ▶ to ensure that all apprentices are appropriately registered and records are maintained as required.
- ▶ to schedule all necessary technical training periods for apprentices to complete requirements for certification.
- ▶ to administer provincial/interprovincial examinations.

### **Provincial Apprenticeship and Certification Board**

- ▶ to set policies to ensure that the provisions of the Apprenticeship Training Act are implemented.
- ▶ to ensure that advisory and examination committees are established and maintained.
- ▶ to accredit institutions to deliver apprenticeship training programs.

## TECHNICAL COURSE OUTLINES

Suggested Course Layout for the Carpenter Occupation

Program & Apprenticeship Registration

ENTRY LEVEL COURSES	
AJ1150 - Basic Drawing & Sketching	75hrs.
AJ1110 - Carpenter Fundamentals	105hrs.
AJ1200 - Site Preparation, Layout & Footings	75hrs.
AJ1210 - Wall Forms	60hrs.
AJ1220 - Floor and Wall Framing	75hrs.
AJ1400 - Interior Walls and Ceilings	60hrs.
AJ1500 - Interior Trim	75hrs.
AJ1300- Roof Framing Fundamentals	90hrs.
AJ1230 - Exterior Finish	75hrs.
AJ1600 - Stair Fundamentals	75hrs.
AJ1120 - Rigging for Carpenters	30hrs.
*CM2150 - Workplace Correspondence	45hrs.
*MR1210 - Customer Service	30hrs.
*SP2330 - Quality Assurance/Quality Control	30hrs.
*MC1050 - Introduction to Computers	30hrs.
*SD1700 - Workplace Skills	30hrs.
*SD1710 - Job Search Techniques	15hrs.
*SD1720 - Entrepreneurial Awareness	15hrs.

\*Related courses are to be interspersed throughout the program.

Required Work Experience(*if applicable*)

ADVANCED LEVEL ENTRY	
AJ2410 - Scaffolds	45hrs.
AJ2300 - Hip and Valley Roof Framing	75hrs.
AJ2310 - Gambrel, Mansard and Unusual Roof Framing	60hrs.
AJ2330 - Timber Trusses and Flat Roofs	45hrs.
AJ2220 - Structural Formwork	90hrs.
AJ2600 - Interior Finish Stairs	60hrs.
AJ2500 - Cabinets and Shelving	105hrs.
AJ2400 - Post and Beams	45hrs.

Work Experience

Journeysperson Certification

**NAME AND NUMBER:** AJ1120 - Rigging for Carpenter

**DESCRIPTION:**

This general studies course requires the use of rigging equipment, block and tackle, and safety equipment. It involves installing, testing and maintaining rigging; and tying knots and splicing rope. It includes information on safety requirements, types of ropes, types of knots and slings.

**COURSE AIMS:**

1. To develop the skills and knowledge required to install safe rigging

**PREREQUISITES:** None

**COURSE DURATION:** 30hrs

**EVALUATION:** Theory and Practical Applications Require a pass mark of 70%

**COURSE OBJECTIVES (KNOWLEDGE):**

1. List the Occupational Health and Safety Regulations for rigging
2. Describe the different types of ropes
3. List the different kinds of knots
4. Describe slings.
5. Describe methods of lead balancing
6. Describe the safety factors to be considered when using swing staging
7. Describe the proper procedures and equipment for handling heavy objects
8. Describe types and conditions of approved work platforms
9. Specify the use of screw jacks versus hydraulic units
10. Specify the use of elevators

**MAJOR TASKS / SUBTASKS (SKILLS):**

1. Use and maintain rigging equipment
  - a. Recognize and use International Hand Signals
  - b. Calculate Safe Working Loads
  - c. Interpret occupational health and safety regulations
  - d. Demonstrate the safe and proper use of lifting equipment such as come-a-longs, chain falls, jacks, winches, overhead cranes, jacks, skids, cable tuggers, plate

- grabs, reeved blocks, slings and rope
  - e. Demonstrate proper use of knots
  - f. Use lifting attachments such as eye bolts and lifting lugs, beam clamps and crawlers, snatch blocks, spreader bars, shackles and screw jacks
  - g. Transfer loads using lifting equipment
  - h. Use hoisting equipment
  - i. Direct/assist in loading/unloading masonry units from trucks
  - j. Direct/assist hoisting masonry units to work stations
2. Use and maintain overhead cranes [Theory]
- a. Safely and effectively use overhead cranes
  - b. Use proper lifting procedures
  - c. Use hoisting and/or crane signals
  - d. Use plate grab and/or slings



**NAME AND NUMBER:** AJ1150 - Basic Drawing and Sketching

**DESCRIPTION:**

This drafting course requires the use of basic drawings, specifications, bills of materials, drawing instruments and facilities. It involves reading basic drawings and diagrams, sketching, and interpretation of specifications. It includes information on sketching techniques and types of drawings.

**COURSE AIMS:**

1. To develop the skills and knowledge required to read drawings and sketch views

**PREREQUISITES:** None

**COURSE DURATION:** 75hrs

**EVALUATION:** Theory and Practical Applications Require a pass mark of 70%

**COURSE OBJECTIVES (KNOWLEDGE):**

1. Describe the alphabet of lines
2. List the basic drawing symbols
3. Explain what is meant by quality of lines
4. Describe metric, mechanical, architectural and civil scales
5. Describe the different types of pencil lead grades
6. Describe letter types
7. Describe lettering instrument types
8. Explain spacing, sizes and lettering techniques
9. Describe different view orientations
10. Describe obliques, isometrics and perspectives
11. Explain sketching techniques
12. Explain main view and possible views
13. Describe the six principle views
14. Explain association of surfaces
15. Explain matching pictorials
16. Describe types of dimensions and lines used
17. Explain the rules of dimensioning
18. Explain the various methods of producing lines

19. Describe the purpose and types of sectional views
20. Explain conventions associated with sectional views such as symbols, cutting plane lines, broken-out lines, etc.
21. Locate standard drawing symbols used on electrical, hydraulic and pneumatic drawings
22. Locate colour codes used for electrical, hydraulic and pneumatic schematics
23. Explain the purpose and methods of dimensioning
24. Explain intersections and developments
25. Explain graphs reticulation

**MAJOR TASKS / SUBTASKS (SKILLS):**

1. Construct geometric shapes and lines
  - a. Draw lines to scale
  - b. Scale lines
  - c. Divide lines into equal parts
  - d. Bisect lines
  - e. Construct angles
  - f. Bisect angles
  - g. Construct concave and convex curves
  - h. Construct circles, arcs, tangents, ellipses, polygons, etc.
2. Sketch orthographic projections
  - a. Visualize object
  - b. Select views
  - c. Layout sketch
  - d. Sketch projection
  - e. Dimension sketch
  - f. Make notations
3. Sketch sectional views
  - a. Locate section
  - b. Select type of view
  - c. Determine scale
  - d. Sketch view
  - e. Dimension sketch
  - f. Make notations
4. Sketch primary auxiliary views
  - a. Visualize the view
  - b. Layout the sketch
  - c. Sketch view
  - d. Dimension sketch

- e. Make notations
5. Identify information from blueprints and drawings
    - a. Visualize views and projections
    - b. Identify information from schematic diagrams, assembly drawings, views, feeder maps, etc.
    - c. Identify sequence of fabrication according to blueprint
    - d. Identify cut of materials from sketches
    - e. Interpret horizontal, vertical, curved, inclined lines, fillets, and radii on working drawings
    - f. Identify dimensions of holes, cylinders, circles, angles and arcs
  6. Interpret mechanical drawings
    - a. Interpret and apply required information from mechanical drawings
  7. Interpret electrical drawings
    - a. Interpret and apply required information from electrical drawings
  8. Read architectural and structural drawings
    - a. Read plot plan, foundation plans, floor plans, details, elevations and sections
  9. Interpret specifications
    - a. Interpret manufacturing specifications
    - b. Identify tolerance specifications
    - c. Interpret specifications (company standards books)
  10. Uses codes, regulations and standards
    - a. Find and interpret specific requirements in the National Building Code
    - b. Find and interpret specific requirements in the National Energy Code
    - c. Find and interpret specific requirements in the Canadian Standards Association standards
    - d. Find and interpret specific requirements in the Buildings Accessibility Act and Regulations
    - e. Find and interpret specific requirements in the Canadian Wood Council Span Book
    - f. Interpret and comply with national, provincial and municipal codes and regulations (employment, health, environment, security regulations and standards)
  11. Performs quantity takeoffs
    - a. Interpret the rules for performing quantity takeoffs
    - b. Use scale rules and calculators
    - c. Identify information from bill of materials
    - d. Schedule materials availability to meet project requirements

**NAME AND NUMBER:** AJ1110 - Carpenter Fundamentals

**DESCRIPTION:**

This course in Carpenter fundamentals requires the use of basic tools and equipment and suitable facilities. It involves reading specifications and drawings, selecting materials, layout, building and clean up. It includes information on constructing wood joints, and building equipment such as sawhorses, miter boxes, ladders, straight edges and oilstone cases.

**COURSE AIMS:**

1. To develop the skills and knowledge required for building equipment with respect to various codes and regulations
2. To practice safety in potentially harmful situations
3. To develop an appreciation for conservation and environmental issues
4. To identify, select, estimate and conserve building materials (CJ-A5)

**PREREQUISITES:** None

**COURSE DURATION:** 105hrs

**EVALUATION:** Theory and Practical Applications Require a pass mark of 70%

**COURSE OBJECTIVES (KNOWLEDGE):**

1. Describe types of wood joints.
2. Describe types of construction equipment.
3. List general workplace safety regulations.
4. List fire safety regulations.
5. Describe the operation and uses of different types of fire extinguishers.
6. Explain the safety standards prescribed by the Occupational Health and Safety Regulations.

**MAJOR TASKS / SUBTASKS (SKILLS):**

1. Complete St. John Ambulance Standard First Aid Course
2. Complete a Workplace Hazardous Materials Information Systems Course
3. Complete The Course on Power Line Hazards

4. Complete The Course on Guidelines for Confined Spaces

5. Use and maintain hand tools

- a. Square an undressed board
- b. Crosscut wood using handsaws
- c. Make cuts at different angles using handsaws
- d. Rip wood using hand saws
- e. Check boards for straightness
- f. Select material for a particular project
- g. Grind a plane iron and a wood chisel
- h. Dress a grinding wheel using a wheel dresser
- i. Restore an oil stone
- j. Sharpen auger bit sets
  - i. flat bits
  - ii. twist drill bits
- k. Measure
- l. Hammer
- m. Test a hand level
- n. Use builder's level
- o. Use abrading tools (sandpaper, rasps)
- p. Use dismantling tools (nail pullers, wrecking bars)

6. Uses portable power tools

- a. Use and maintain portable power tools
- b. Use portable saws (circular, reciprocating)
- c. Use portable power drills
- d. Use portable abrading tools(sanders, grinders)
- e. Use portable planing tools
- f. Use routers and laminate trimmers
- g. Ability to operate and maintain portable equipment (chainsaws, generators, air compressors, air/gas-powered fastening tools, chipping guns, concrete saws, impact drills, concrete floats)
- h. oxy-acetylene cutting, arc welding

7. Use and maintain stationary power tools

- a. Cross cut using a table saw, a radial arm saw and a miter saw
- b. Rip using a radial arm saw and a table saw
- c. Cut bevels or chamfers using a radial arm saw, a table saw, a jointer and a shaper
- d. Cut miters using a radial arm saw, a table saw and a miter saw
- e. Cut angles and compound angles using a radial arm saw, a table saw and a band saw
- f. Cut dados using a table saw, a radial arm saw and a shaper

- g. Rabbet using a table saw, a radial arm saw, a jointer and a joint on jointer
  - h. Notch using a table saw, a radial arm saw and a tapering
  - i. Use stationary surfacing machines (eg. thickness planers, jointers)
  - j. Use stationary drilling and boring tools
  - k. Use stationary abrading tools
8. Build equipment used on job sites, using hand tools such as:
- a. Carpenters horse/saw horse
  - b. Tool tray
  - c. Ladder
  - d. Miter box
  - e. Door jack
  - f. Wood float
  - g. Oil stone case
9. Use explosive actuated tools
- a. Select the proper tool for a specific use
  - b. Follow Occupational Health and Safety Regulations
  - c. Choose the correct shot and fastener for the job
  - d. Apply safety practices while using explosive actuated tools
  - e. Fasten construction material to masonry and steel
  - f. Maintain and clean explosive actuated tools

**NAME AND NUMBER:** AJ1200 - Layout and Footings

**DESCRIPTION:**

This course in site preparation and formwork requires the use of tools and equipment and materials and supplies, and suitable facilities. It involves interpreting specifications and blueprints, layout, erecting batterboards, installing footing forms and cleaning up. It includes information on plot plans, foundation plans, layout and construction techniques, foundation drainage.

**PREREQUISITES:** AJ1110, AJ1150

**COURSE DURATION:** 75hrs

**EVALUATION:** Theory and Practical Applications Require a pass mark of 70%

**COURSE AIMS:**

1. To develop the skills and knowledge required for layout and footing construction with respect to various codes and regulations
2. To practice safety in potentially harmful situations
3. To develop an appreciation for conservation and environmental issues
4. To identify, select, estimate and conserve building materials
5. To ensure energy efficient building construction

**COURSE OBJECTIVES (KNOWLEDGE):**

1. Describe types of batterboards and layout techniques
2. Explain how foundation drainage is accomplished
3. Explain footing form construction techniques
4. Identify concrete placing equipment
5. Calculate volume of concrete S.I./imperial

**MAJOR TASKS / SUBTASKS (SKILLS):**

1. Site Preparation
  - a. Direct the performance of excavating techniques (digging/backfilling)
  - b. Determine site conditions and specify any special construction considerations (subterranean, water problems, shoring & bracing requirements, depth of frost, pumping requirements, line setbacks, etc.)
  - c. Erect temporary utilities, services, and site access

- d. Build and install temporary safety or environmental protection (hoarding and guardrails)
  - e. Construct temporary shelters and furniture
  - f. Plan storage of and access to building materials and equipment
2. Layout and erect batterboards and building lines
- a. Locate property lines
  - b. Establish building lines
  - c. Erect batterboards
  - d. Check specifications of excavation
3. Uses survey instruments
- a. Knowledge of basic survey terminology
  - b. Install, adjust, and use levels with or without a vernier scale
  - c. Determine instrument accuracy
  - d. Use a theodolite and transit [Theory]
  - e. Explain the use and purpose of distometer, and total station
  - f. Establish grades using straight edge and level, builder's level, and water level
  - g. Explain the use and advantages of laser leveling
4. Install foundation drainage
- a. Lay foundation drainage
  - b. Apply of damp proofing materials
  - c. Apply of waterproofing materials
5. Construct and install footing forms
- a. Align and brace footing forms
  - b. Build footing forms as detailed on footing schedule or structural drawings
  - c. Construct independent tapered forms
  - d. Construct offset footing forms
  - e. Construct continuous footing forms
  - f. Construct "T" type footing forms
  - g. Construct stepped footing forms
  - h. Install blockouts, keyways, template for dowels, anchor bolts and rebar
  - i. Strip footing forms
6. Install footing for wood preserve foundation
- a. Place a level bed of stone
  - b. Place bed plank on stone



**NAME AND NUMBER:** AJ1210 - Wall Forms

**DESCRIPTION:**

This course in site preparation and formwork requires the use of basic tools and equipment, materials and supplies, a surveyor's level and suitable facilities. It involves interpreting specifications and blueprints, layout, constructing foundation walls, installing access for pouring concrete, stripping forms and cleaning up. It includes information on layout techniques, types of wall forms and construction techniques.

**COURSE AIMS:**

1. To develop the skills and knowledge required for constructing wall forms with respect to various codes and regulations
2. To practice safety in potentially harmful situations
3. To develop an appreciation for conservation and environmental issues
4. To identify, select, estimate and conserve building materials
5. To ensure energy efficient building construction

**PREREQUISITES:** AJ1200

**COURSE DURATION:** 60hrs

**EVALUATION:** Theory and Practical Applications Require a pass mark of 70%

**COURSE OBJECTIVES (KNOWLEDGE):**

1. Describe types and variations of wall forms
2. Explain construction techniques for building and stripping wall forms

**MAJOR TASKS / SUBTASKS (SKILLS):**

1. Construct and install wall forms
  - a. Construct or assemble forms for concrete (wood, steel, fiberglass, gang, one-sided, EPS, tilt-up)
  - b. Establish the location of walls
  - c. Brace and align wall forms.
  - d. Establish the specified elevation of concrete on the forms
  - e. Construct beam pockets and ash dumps and sleeves
  - f. Fur out and brace window and door frames

- g. Install embedded sills
  - h. Strip wall forms and cure concrete as required
2. Install rough bucks and metal frames in masonry
- a. Construct and install wooden bucks and bulkheads
  - b. Set metal frames for masonry
  - i. Install miscellaneous inserts, block-outs, rustications, frames and rough bucks, anchor bolts and construction joints
3. Build ramps, runways, chutes and splashboards
- a. Construct runways
  - b. Construct ramps
  - c. Construct splashboards
  - d. Construct concrete chutes
4. Install preserve wood foundation wall
- a. Construct wall
  - b. Install wall

**NAME AND NUMBER:** AJ1220 - Floor and Wall Framing

**DESCRIPTION:**

This course in exterior framing requires the use of tools and equipment, materials and supplies and suitable facilities. It involves interpreting specifications and blueprints, layout, framing and installing, and cleaning up. It includes information on floor plans, types of beams and columns, types of sheathing and construction techniques.

**COURSE AIMS:**

1. To develop the skills and knowledge required for framing walls and floors with respect to various codes and regulations
2. To practice safety in potentially harmful situations
3. To develop an appreciation for conservation and environmental issues
4. To identify, select, estimate and conserve building materials
5. To ensure energy efficient building construction

**PREREQUISITES:** AJ1110 AJ1150

**COURSE DURATION:** 75hrs

**EVALUATION:** Theory and Practical Applications Require a pass mark of 70%

**COURSE OBJECTIVES (KNOWLEDGE):**

1. Describe types of beams
2. Describe types of columns
3. Explain construction techniques for building and installing walls, columns and beams.
4. Identify new types of construction materials.

**MAJOR TASKS / SUBTASKS (SKILLS):**

1. Set sills
  - a. Mark out anchor bolt locations on sill stock
  - b. Level sills
  - c. Check foundations for trueness
  - d. Select suitable sill stock
  - e. Install sill material, gaskets or sill sealers using anchor bolts

2. Construct and install beams
  - a. Plan end joint locations in built-up wood beams
  - b. Construct support or temporary post for beams
  
3. Install columns
  - a. Locate columns on their base
  - b. Build columns
  - c. Construct temporary posting for beams
  - d. Install steel columns
  
4. Prepare and install floor framing
  - a. Identify various types of floor framing systems and describe the advantages & disadvantages of various materials
  - b. Estimate material needed for a wood floor system
  - c. Define live and dead loads and state the important load considerations for floor framing
  - d. Lay out and frame rough openings
  - e. Layout and frame floor framing features ( stairwells, cantilevers, sunken and drop floors)
  - f. Notch and drill floor framing members while maintaining floor strength
  - g. Frame joists to steel beams and special engineered wood beams
  - h. Square and level floor framing
  - i. Calculate and cut bridging
  - j. Install bridging, strapping, shimming, ribbon strip and sleepers
  
5. Installs floor sheathing
  - a. Select types of floor sheathing and explain the selection.
  - b. Chose floor fasteners & adhesives to satisfy the fastening requirements.
  - c. Lay out and install floor sheathing
  
6. Frame exterior walls
  - a. List and describe types of wall framing
  - b. State the important loading conditions to be considered when framing walls
  - c. Notch and drill wall framing members while maintaining strength
  - d. Determine location of walls
  - e. Select materials for wall frames
  - f. Lay out, assemble and erect walls, plumb, and square
  - g. Lay out shoe for studs
  - h. Calculate stud lengths
  - i. frame non-bearing and load-bearing walls
  - j. install timber frame components
  - k. install blocking, nailers, furring, firestops, etc.
  - l. Determine rough openings for window frames

- m. Determine rough openings for door frames
  - n. Build up headers for openings
  - o. Build corner posts and partition posts
  - p. align and brace walls
  - q. Install let-in bracing
  - r. Assemble and raise wall frames - plumb and square
7. Install wall sheathing
- a. Select wall sheathing materials and explain your choice
  - b. Select wall fasteners, adhesives to satisfy fastening requirements.
  - c. Lay out wall sheathing.
  - d. Install lumber sheathing horizontally
  - e. Install lumber sheathing diagonally on exterior walls
  - f. Install fibre board sheathing
  - g. Install gypsum board sheathing
  - h. Install plywood sheathing
  - i. Install rigid insulation sheathing
8. Install insulation and vapour barrier
- a. Install glass fiber thermal insulation in frame walls
  - b. Install glass fiber thermal insulation in ceiling spaces
  - c. Install vapour barriers on walls and ceilings
  - d. Provide adequate ventilation of attic and roof spaces

**NAME AND NUMBER:** AJ1230 - Exterior Finish

**DESCRIPTION:**

This course in exterior framing requires the use of tools and equipment, materials and supplies and suitable facilities. It involves interpreting specifications and blueprints; layout, construction and installation of exterior finishes; and clean up.. It includes information on blueprint sections, elevations and details; types of exterior frames and trim; and construction techniques.

**COURSE AIMS:**

1. To develop the skills and knowledge required for the installation of exterior finishes with respect to various codes and regulations
2. To practice safety in potentially harmful situations
3. To develop an appreciation for conservation and environmental issues
4. To identify, select, estimate and conserve building materials
5. To ensure energy efficient building construction

**PREREQUISITES:** AJ1110 AJ1150

**COURSE DURATION:** 75hrs

**EVALUATION:** Theory and Practical Applications Require a pass mark of 70%

**COURSE OBJECTIVES (KNOWLEDGE):**

1. Describe types of exterior framing
2. Describe types of exterior wall trim and finishes
3. Describe construction techniques for installing exterior framing and trim

**MAJOR TASKS / SUBTASKS (SKILLS):**

1. Install exterior door and window frames
  - a. Read door and window schedules
  - b. Determine the size and type of windows required
  - c. Determine hand of doors
  - d. Select doors and windows
  - e. Check rough openings
  - f. Install felt around exterior openings

- d. Install window frames and exterior door frames
  - e. Install backing/blocking for security purposes
  - f. Fasten frame
  - g. Insulate cavities around frames
2. Installs doors and windows with hardware
- a. Fit a variety of doors into frame/opening
  - b. Locate and install hinges
  - c. Test & adjust doors
  - d. Install windows
  - e. Read hardware schedule/ list
  - f. Select various types and styles of hardware
  - g. Install and adjust hardware
3. Install special exterior trim
- a. Establish top elevation of a water table
  - b. Lay out and identify special exterior wall trim
  - c. Install special exterior trim
4. Install wood sidings
- a. Install felt paper or other specified building coverings to wall sheathing
  - b. Apply built-up corner boards
  - c. Install exterior wall flashing
  - d. Install exterior wall coverings
  - e. Lace shingles at corners
  - f. Apply several types of sidewall sidings to a watertight finish
  - g. Use story poles
  - h. Alternate and lap corners of siding
  - i. Install exterior trim (window and door moulding trim, drip caps and brick moulding, corner boards, frieze boards, barge boards).
  - j. Mitre corners of clapboards
5. Prepare for stucco application
- a. Plan stucco control joints
  - b. Prepare new or old framework for stucco
  - c. Install flashing, lath, and grounds for stucco
6. Install metal and other material sidings
- a. Cut vinyl and metal siding
  - b. Fasten vinyl and metal siding
  - c. Install siding accessories

**NAME AND NUMBER:** AJ1300 - Roof Framing Fundamentals

**DESCRIPTION:**

This course in roof framing requires the use of tools and equipment, materials and supplies and suitable facilities. It involves interpreting specifications and blueprints; layout, installation and construction of basic roof frames and covers; and clean up. It includes information on types of roof frames and covers, and construction and installation techniques.

**COURSE AIMS:**

1. To develop the skills and knowledge required for basic roof framing with respect to various codes and regulations
2. To practice safety in potentially harmful situations
3. To develop an appreciation for conservation and environmental issues
4. To identify, select, estimate and conserve building materials
5. To ensure energy efficient building construction

**PREREQUISITES:** AJ1220

**COURSE DURATION:** 90hrs

**EVALUATION:** Theory and Practical Applications Require a pass mark of 70%

**COURSE OBJECTIVES (KNOWLEDGE):**

1. Describe types of roof frames
2. Describe types of roof coverings
3. Explain construction and installation techniques for different types of frames and coverings

**MAJOR TASKS / SUBTASKS (SKILLS):**

1. Build and install trussed rafters
  - a. Identify and describe different roof styles
  - b. Select materials and type of trusses to be used
  - c. Identify and describe roof members (purlins, collar ties, webs and chords)
  - d. Cut gussets
  - e. Cut components of a trussed rafter



- f. Lay out a jig for trussed rafters
  - g. Install trussed rafters
2. Frame and erect gable and shed roofs
- a. Lay out and calculate for common rafters
  - b. Lay out ceiling joist and rafter locations
  - c. Lay out a common rafter pattern
  - d. Install common ceiling joists and rafters
  - e. Frame openings for chimneys
  - f. Lay out and cut gable studs
  - g. Lay out and frame gable overhang
  - h. Lay out shed rafter cut for dormers
  - i. Prepare the roof for sheathing
  - k. Lay out and cut collar ties
  - l. Lay out ridge board
3. Installs roof sheathing
- a. Identify and describe types of roof sheathing
  - b. Identify and describe roof fasteners, adhesives and fastening requirements
  - c. Select roof sheathing materials.
  - d. Lay out and install roof sheathing.
4. Build cornices
- a. Draw a full size view of a cornice
  - b. Align rafter tails
  - c. Install lookouts and rough fascia
  - d. Install fascia and board on eaves
  - e. Mitre fascia and frieze boards
  - f. Install crown mouldings
  - g. Install soffit materials
  - h. Install frieze boards and bed mouldings
  - i. Cope mouldings
  - j. Fur rake cornices
  - k. Install rake fascia or barge boards
  - l. Install gutters and downspouts
5. Install common roof coverings
- a. Check and repair roof sheathing
  - b. Plan installation of asphalt roof shingles
  - c. Install underlayment felt paper
  - d. Apply eave protection
  - e. Install flashings in a closed valley
  - f. Install open valley flashings

- g. Apply asphalt shingles
- h. Apply low slope applications of asphalt shingles
- i. Flash vent stacks
- j. Flash chimneys
- k. Cap the roof ridge with asphalt shingles
- l. Apply 914 mm (36") roll roofing
- m. Apply roberoid
- n. Apply wood shakes and shingles

**NAME AND NUMBER:** AJ1400 - Interior Walls and Ceilings

**DESCRIPTION:**

This course in interior finish requires the use of tools and equipment, materials and supplies and suitable facilities. It involves interpreting specifications and blueprints; layout, construction and installation of interior walls and ceilings; and clean up. It includes information on drywall systems and construction techniques.

**COURSE AIMS:**

1. To develop the skills and knowledge required for interior wall and ceiling construction with respect to various codes and regulations
2. To practice safety in potentially harmful situations
3. To develop an appreciation for conservation and environmental issues
4. To identify, select, estimate and conserve building materials
5. To ensure energy efficient building construction

**PREREQUISITES:** AJ1220

**COURSE DURATION:** 60hrs

**EVALUATION:** Theory and Practical Applications Require a pass mark of 70%

**COURSE OBJECTIVES (KNOWLEDGE):**

1. Describe types of drywall systems
2. Explain interior wall and ceiling construction techniques

**MAJOR TASKS / SUBTASKS (SKILLS):**

1. Frame bearing and non-bearing partitions
  - a. Establish size of framing material
  - b. Build partitions using lumber
  - c. Build partitions using steel studs
2. Apply gypsum drywall systems
  - a. Identify and select gypsum wallboard accessories and products
  - b. Use fasteners and adhesives.
  - c. Plan sheet locations in rooms

- b. Install gypsum sheets on walls and ceilings
  - c. Mark and cut panels around obstacles such as ducts, pipes and outlets
  - d. Use adhesives for applications of panels
  - e. Apply pre-decorated gypsum panels
  - f. Fill and/or tape joints for specified “finish”
  - g. Install wallboard accessories
3. Apply decorative panels, sheets and tiles
- a. Plan and install wall panelling
  - b. Plan and install ceiling tiles with straight joints
  - c. Plan and install ceiling tiles with staggered joints
4. Apply special type of interior wall coverings
- a. Identify and select non-gypsum wall coverings (plywood paneling, hardboard paneling, laminates, trims and accessories)
  - b. Install architectural paneling and millwork.
  - c. Apply tile boards with adhesive and mouldings
  - d. Apply plastic laminates
  - e. Apply special purpose wall coverings
  - f. Apply bonding materials for wall coverings
5. Installs special architectural trim
- a. Read finish schedules
  - b. Select and use adhesives and fasteners
  - c. Prepare architectural materials for specified finish
  - d. Select and match architectural materials
6. Install plaster grounds and plaster base materials
- a. Construct a jig for plaster grounds
  - b. Install gypsum
  - c. Install reinforcing material at corners and points of stress
  - d. Install guides for plaster thickness at doors, windows, and base
7. Installs non-suspended ceilings
- a. Various ceiling materials
  - b. Fasteners / adhesives
  - c. Lay out for ceiling pattern
  - d. Install strapping or furring
  - e. Construct non-suspended ceilings, e.g (composition ceiling tiles, solid wood paneling, gypsum board, hardboard paneling)
8. Install ceiling strapping, furring and frame drop ceilings and bulkheads
- a. Identify various uses for dropped ceilings ( e.g. architectural features, cabinet

- projections, concealing ducts)
  - b. Plan strapping layout for ceiling tiles
  - c. Plan and install frame work for drop ceilings
  - d. Install strapping
  - e. Shim and level supporting framework
  - f. Use leveling instruments to establish elevation
9. Installs suspended ceiling
- a. Ceiling components
  - b. Lay out for ceiling pattern
  - c. Establish reference lines
  - d. Level ceiling grid
  - e. Install anchors for attaching hangers
  - f. Install components of a suspended ceiling
  - g. Install ceiling tile
  - h. Install metal linear ceiling strip
10. Install acoustical materials
- a. Install acoustical ceiling tile
  - b. Install fibreglass batts or blankets in staggered stud partitions
  - c. Install fibreglass sheets as floor sound deadening
  - d. Apply cork to walls or doors
  - e. Install cushion plates in floor system
  - f. Install sound deadening wall curtain

**NAME AND NUMBER:** AJ1500 - Interior Trim

**DESCRIPTION:**

This course in interior finish requires the use of tools and equipment; materials and supplies; and suitable facilities. It involves interpretation of specifications and blueprints; layout, construction and installation of interior trim; and clean up. It includes information on types and purposes of trim, and construction and installation techniques.

**COURSE AIMS:**

1. To develop the skills and knowledge required for installing interior trim with respect to various codes and regulations
2. To practice safety in potentially harmful situations
3. To develop an appreciation for conservation and environmental issues
4. To identify, select, estimate and conserve building materials
5. To ensure energy efficient building construction

**PREREQUISITES:** AJ1110

**COURSE DURATION:** 75hrs

**EVALUATION:** Theory and Practical Applications Require a pass mark of 70%

**COURSE OBJECTIVES (KNOWLEDGE):**

1. Describe types of interior trim
2. Explain installation techniques for interior trim
3. Identify special equipment for the physically disabled

**MAJOR TASKS / SUBTASKS (SKILLS):**

1. Install underlayment and strip flooring
  - a. Prepare for laying finish floors
  - b. Estimate amount of materials needed for finish floor and underlay
  - c. Install underlay
  - d. Lay strip flooring material
  - e. Apply finishes/sealers
2. Lay special wood floors

- a. Prepare sub-floor
  - b. Calculate and laying out starting lines for strip and parquet flooring
  - c. prepare floor surfaces (sleepers / shims)
  - d. select & match materials
  - e. Lay out special floors
  - f. Select and apply fasteners and adhesives for special floors
  - d. Provide bases for special floors
3. Installs resilient tile / rolled flooring
- a. Select and install underlayment
  - b. Lay out reference points and guidelines
  - c. Prepare floor surfaces
  - d. Select & use fasteners and adhesives
  - e. Install resilient floor coverings
  - f. Install vinyl base
4. Installs specialized flooring systems
- a. Decide upon access flooring components (pedestals, stringers, floor panels, trims and accessories)
  - b. Explain installation procedures for gymnasium flooring
  - c. Explain installation procedures for ceramic flooring
  - d. Explain installation procedures for bowling alley flooring
  - e. Install access flooring components
  - f. Adjust & level access flooring
  - g. Install bowling alley flooring
  - h. Install gymnasium flooring
5. Install common interior door & window frames
- a. Read door & window schedules
  - b. Determines doors & windows required
  - c. Select various types of doors and windows
  - d. Verify rough openings
  - e. Determine hand of doors
  - f. Select various types of frames
  - g. Fasten frame to rough opening
  - h. Plumb, square and level door/window frame.
  - i. Install backing / blocking
6. Installs doors
- a. Fit door into frame
  - c. Mark hinge and lock locations on doors
  - d. Lay out and cut gains for hinges
  - e. Cut gains with a router and template

- f. Cut a mortise for a door lock
  - g. Lay out and mortise a strike plate
  - h. Use door and lock jigs
  - i. Install several types of lock sets
  - j. Prepare door jambs
  - k. Install metal jambs and pre-hung doors
  - l. Install stops
  - m. Test & adjust doors
7. Installs interior windows and hardware
- a. Install window/sash in frame
  - b. Install stops
  - c. Read hardware schedules & lists
  - d. Select various types of hardware
  - e. Install and adjust various hardware
8. Install interior trim
- a. Cut rabbet and mitre joints
  - b. Cope baseboard
  - c. Return mouldings on themselves
  - d. Install casings and mouldings
  - e. Scribe materials to fit



**NAME AND NUMBER:** AJ1600 - Stair Fundamentals

**DESCRIPTION:**

This course in stair construction requires the use of tools and equipment, materials and supplies, and suitable facilities. It involves interpretation of specifications and blueprints; layout, construction and installation of basic stairs; and clean up. It includes information on stair geometry.

**COURSE AIMS:**

1. To develop the skills and knowledge required for constructing basic stairs with respect to various codes and regulations
2. To practice safety in potentially harmful situations
3. To develop an appreciation for conservation and environmental issues
4. To identify, select, estimate and conserve building materials
5. To ensure energy efficient building construction

**PREREQUISITES:** AJ1110 AJ1150

**COURSE DURATION:** 75hrs

**EVALUATION:** Theory and Practical Applications Require a pass mark of 70%

**COURSE OBJECTIVES (KNOWLEDGE):**

1. Calculate rise and run for stairs

**MAJOR TASKS / SUBTASKS (SKILLS):**

1. Construct and install stair forms
  - a. Determine Unit rise and run of stairs
  - b. Build soffit type stair forms
  - c. Build on grade type stair forms
  - d. Locate and install miscellaneous inserts in stairs
  - e. Install anchor bolts as per specifications
2. Build basement stairs and exterior steps
  - a. Build stairs with cut-out stringers
  - b. Select from various stair designs.

- c. Determine stairway components and materials.
- d. Select stairway materials.
- e. Lay out and build stair landings.
- f. Calculate, lay out and cut stringers, treads and risers.
- g. Install stringers, treads, risers.
- h. Prepare stairs to specified finish.
- i. Install pre-manufactured stairs.

**NAME AND NUMBER:** AJ2410 - Scaffolds

**DESCRIPTION:**

This course in scaffolding requires the use of tools and equipment, materials and supplies and suitable facilities. It involves interpreting specifications and blueprints; layout, construction and installation of wood scaffolds; and clean up. It includes information on construction techniques and safety requirements for wood scaffolds.

**COURSE AIMS:**

1. To develop the skills and knowledge required for constructing wood scaffolds with respect to various codes and regulations
2. To practice safety in potentially harmful situations
3. To develop an appreciation for conservation and environmental issues
4. To identify, select, estimate and conserve building materials
5. To ensure energy efficient building construction

**PREREQUISITES:** AJ1110 AJ1150

**COURSE DURATION:** 45hrs

**EVALUATION:** Theory and Practical Applications Require a pass mark of 70%

**COURSE OBJECTIVES (KNOWLEDGE):**

1. Describe construction techniques for wood scaffolds
2. Describe safety requirements for constructing wood scaffolds
3. Describe the different types of scaffold
4. Describe the different types of ladders
5. Describe power scaffolding
6. Explain how suspended scaffolding is erected and when and how it is used
7. List safety rules for erecting and working on scaffolding (Safety in structural components)
  - a. putlogs
  - b. braces
  - c. ties
  - d. planking
  - e. footboards
  - f. scaffold brackets

8. Describe special problems of rolling and suspended scaffolding

**MAJOR TASKS / SUBTASKS (SKILLS):**

1. Build common type of wood scaffolds
  - a. Build wood scaffold ladders according to safety regulations
  - b. Dismantle wood scaffolds
  - c. Design scaffolds for economy of time and material
  - d. Construct a roof bracket
  - e. Construct a roof scaffold for a chimney
  
2. Use steel scaffolding
  - a. Erect and dismantle standard steel scaffolds for at least three lifts
  - b. Erect, dismantle and maintain rolling scaffolds
  - c. Erect, dismantle and maintain stages and bleachers
  - d. Describe adjustable tower scaffolding and advantages
  - e. Use machine scaffolds (scissor lifts and zooms)
  - f. Inspect scaffolding before using
  
3. Build special scaffolds
  - a. Explain the necessity and use of swing staging
  - b. Assemble and erect various special scaffolds such as outrigger and suspended types

**NAME AND NUMBER:** AJ2220 - Structural Formwork

**DESCRIPTION:**

This course in site preparation and formwork requires the use of basic tools and equipment, materials and supplies, a surveyor's level and suitable facilities. It involves interpreting specifications and blueprints, layout, constructing and installing structural formwork, and cleaning up. It includes information on types of structural formwork; and designing, testing and placing formwork.

**COURSE AIMS:**

1. To develop the skills and knowledge required for structural formwork with respect to various codes and regulations
2. To practice safety in potentially harmful situations
3. To develop an appreciation for conservation and environmental issues
4. To identify, select, estimate and conserve building materials
5. To ensure energy efficient building construction

**PREREQUISITES:** AJ1210 AJ1150 AJ1110

**COURSE DURATION:** 90hrs

**EVALUATION:** Theory and Practical Applications Require a pass mark of 70%

**COURSE OBJECTIVES (KNOWLEDGE):**

1. Describe tests for concrete and explain their purpose
2. Describe types of structural formwork
3. Explain construction techniques for structural formwork
4. Explain the types of techniques for concrete reinforcements

**MAJOR TASKS / SUBTASKS (SKILLS):**

1. Build and install columns, beams and slab forms
  - a. Construct slab and beam forms
  - b. Construct and install several types of column forms
  - c. Set anchor bolts
  - d. Locate and position column forms
  - e. Establish cut-off elevations for columns

- f. Build and install shores
  - g. Prepare for finish concrete elevation
  - h. Construct and install different types of forms
  - i. Strip forms and cure concrete as required
2. Builds column and pier forms
- a. Assemble column and pier forms (wood, metal, fiber tube type)
  - b. Install column and pier forms (wood, metal, fiber tube type)
  - c. Layout piers and column
  - d. Align and brace column forms
  - e. Establish elevation of pour
  - f. Install miscellaneous inserts and anchor bolts
  - g. Strip forms and cure concrete as required
3. Installs slab / beam forms
- a. Take dimensions from blueprints.
  - b. Assemble and install suspended slab/beam and fly forms.
  - c. Lay out and install forms for slabs on-grade sidewalks, driveways, or curbs.
  - d. Establish elevation of concrete.
  - e. Install miscellaneous inserts.
  - f. Install anchor bolts
  - g. Strip forms and cure concrete as required
4. Constructs concrete joints
- a. Determine different concrete joints
  - b. Make construction joints (keyways & bulkheads)
  - c. Install water stops.
  - d. Construct control joints.
  - e. Construct expansion joints.
  - f. Construct isolation joints.
5. Prefabricate and install special forms
- a. Build special forms for precast concrete
  - b. Build special forms for cast-in-place concrete
  - c. Strip forms and cure concrete as required
6. Construct auxiliary concrete forms
- a. Locate and take dimensions from drawings for auxiliary forms.
  - b. Assemble standard metal and wood forms or moulds for auxiliary applications.
  - c. Install miscellaneous architectural features and finishes (rustication and form liners)

- d. Install miscellaneous inserts in auxiliary forms.
  - e. Strip forms and cure concrete as required
7. Installs precast
- a. Decide upon types of precast components
  - b. Select fastening and backing rods
  - c. Install miscellaneous steel for precast components
  - d. Lay out precast concrete members
8. Install reinforcement
- a. Install rebar
  - b. Install wire mesh
  - c. Tie rebar
  - d. Prepare and install keyway.
9. Design, test and place concrete
- a. Collect samples of concrete for laboratory testing
  - b. Plan and schedule concreting operations.
  - c. Select components for quality concrete mixes
  - d. Conduct on-site slump test of concrete
  - c. Place and consolidate concrete and allow it to cure
  - d. Prepare compressive test cylinders
  - e. Mix on-site concrete by volume
  - f. Trowel and finish concrete surfaces
  - g. Install or construct into the forms the detail for special architectural design and finishes
  - h. Dismantle and prepare forms for reuse.
  - i. Cure concrete
10. Construct and install shoring and underpinning
- a. Determine location and dimensions of shoring and underpinning from drawings
  - b. Install shoring, sheet piling and underpinning to prevent collapse of existing buildings or excavations
  - c. Install timber or structural steel needles
  - d. Construct and install concrete and steel underpinning
  - e. Install blocking cribwork
  - f. Set up screw and hydraulic jacks
  - g. Install timber or steel piles
  - h. Install built-in-place or patented falsework to support floor forms.
11. Install piling
- a. Outline piling procedures
  - b. Describe piling materials and types of piling

- c     Layout piling
- d     Install piling
- e     Build pile cap forms
- f     Establish elevation of pile
- g     Install miscellaneous inserts, and anchor bolts and templates
- h     Install grade beam forms

12. Construct bents

- a.    Construct bents



**NAME AND NUMBER:** AJ2300 - Hip and Valley Roof Framing

**DESCRIPTION:**

This course in roof framing requires the use of tools and equipment, materials and supplies, and suitable facilities. It involves interpreting specifications and blueprints; layout, installation and construction of hip and valley roofs; and clean up.. It includes information on types of intersecting roofs and construction techniques.

**COURSE AIMS:**

1. To develop the skills and knowledge required for hip and valley roof framing with respect to various codes and regulations
2. To practice safety in potentially harmful situations
3. To develop an appreciation for conservation and environmental issues
4. To identify, select, estimate and conserve building materials
5. To ensure energy efficient building construction

**PREREQUISITES:** AJ1300

**COURSE DURATION:** 75hrs

**EVALUATION:** Theory and Practical Applications Require a pass mark of 70%

**COURSE OBJECTIVES (KNOWLEDGE):**

1. Describe types of intersecting roofs
2. Describe hip and valley roof framing construction techniques

**MAJOR TASKS / SUBTASKS (SKILLS):**

1. Frame hip roofs
  - a. Calculate and lay out hip rafters using two methods (step-of and mathematical)
  - b. Draw roof plan showing all rafters of hip a roof
  - c. Calculate and lay out hip jack rafters
  - d. Lay out hip roof ridge boards
  - e. Locate ceiling joists for hip roofs
  - f. Lay out and cut sheathing
  - g. Install roof venting framework

2. Frame intersecting roofs of equal pitch
  - a. Lay out a framing plan for an intersecting roof of equal pitch
  - b. Lay out supporting and shortened valley rafters
  - c. Calculate and layout valley jack and valley cripple jack rafters
  - d. Frame an intersecting roof of equal pitch
  - e. Install roof venting framework
  
3. Frame intersecting roofs of unequal pitch
  - a. Sketch framing plan for unequal pitch intersecting roofs (no cornice)
  - b. Sketch a framing plan for unequal pitch intersecting roof (with cornice)
  - c. Change total rise and total run into Unit rise and Unit run
  - d. Determine the run and line length of unequal pitch roof rafters (no cornice)
  - e. Determine the run and line length of unequal pitch stopped valley rafter
  - f. Determine the cornice drop, increased total rise, and increased total run
  - g. Determine the line length of unequal pitch supporting valley rafters
  - h. Determine the line length of jack rafters with slant triangle method
  - i. Determine the reduction for members in unequal pitch roofs
  - j. Determine the run of cheek cuts for unequal pitch rafters
  - k. Lay out and determine the cheek cuts and reduction of unequal pitch roof members
  - l. Determine the amount to raise the minor plate with a comparative pitch drawing
  - m. Determine the "offset" of unequal pitch valley rafters with a cornice
  - n. Determine and lay out the run and line length of unequal pitch valley rafter tails
  - o. Lay out the valley rafter for unequal pitch intersecting roofs with a cornice
  - p. Lay out the valley rafter for unequal pitch intersecting roofs with a cornice
  - q. Lay out the seat cuts for unequal pitch valley rafters with a cornice
  - r. Determine the line length and layout a valley cripple jack rafter in unequal pitch roof
  - s. Lay out the hip and valley cripple jack rafter in an unequal pitch roof
  - t. Install roof venting framework

**NAME AND NUMBER:** AJ2310 - Gambrel, Mansard and Unusual Roof Framing

**DESCRIPTION:**

This course in roof framing requires the use of tools and equipment, materials and supplies and suitable facilities. It involves interpreting specifications and blueprints; layout, installation and inspection of customized roofs; and clean up. It includes information on types of unusual roofs and customized roof construction techniques.

**COURSE AIMS:**

1. To develop the skills and knowledge required for installing customized roofs with respect to various codes and regulations
2. To practice safety in potentially harmful situations
3. To develop an appreciation for conservation and environmental issues
4. To identify, select, estimate and conserve building materials
5. To ensure energy efficient building construction

**PREREQUISITES:** AJ2300

**COURSE DURATION:** 60hrs

**EVALUATION:** Theory and Practical Applications Require a pass mark of 70%

**COURSE OBJECTIVES (KNOWLEDGE):**

1. Describe types of customized roof designs
2. Explain installation techniques for customized roofs

**MAJOR TASKS / SUBTASKS (SKILLS):**

1. Frame gambrel and mansard roofs
  - a. Lay out a gambrel roof profile
  - b. Cut gambrel roof rafters
  - c. Lay out mansard roof common rafters
  - d. Develop mansard roof hip rafter profile
  - e. Layout and install sheathing
  - f. Install roof venting framework
2. Build unusual roofs to architect's detail

- a. Lay out a pentagon
- b. Lay out a hexagon
- c. Lay out an octagon
- d. Lay out an octagon roof plan
- e. Determine the line length of the octagon rafters
- f. Lay out the octagon common rafter
- g. Lay out the octagon jack rafter cheek cut
- h. Lay out the octagon hip rafter ridge cut
- j. Determine the amount to back an octagon hip rafter
- i. Lay out the octagon hip seat cut
- k. Layout and install sheathing
- l. Install roof venting framework

**NAME AND NUMBER:** AJ2330 - Timber Trusses and Flat Roofs

**DESCRIPTION:**

This course in roof framing requires the use of tools and equipment, materials and supplies and suitable facilities. It involves interpreting specifications and blueprints; layout, construction, installation and inspection of timber trusses and flat roofs and special roof coverings. It includes information on the design and construction of timber trusses and flat roofs.

**COURSE AIMS:**

1. To develop the skills and knowledge required for constructing timber trusses and flat roofs with respect to various codes and regulations
2. To practice safety in potentially harmful situations
3. To develop an appreciation for conservation and environmental issues
4. To identify, select, estimate and conserve building materials
5. To ensure energy efficient building construction

**PREREQUISITES:** AJ1300

**COURSE DURATION:** 45hrs

**EVALUATION:** Theory and Practical Applications Require a pass mark of 70%

**COURSE OBJECTIVES (KNOWLEDGE):**

1. Describe types of roof truss designs
2. Describe construction and installation techniques for timber trusses and flat roofs

**MAJOR TASKS / SUBTASKS (SKILLS):**

1. Assemble and install timber trusses
  - a. Construct timber trusses
  - b. Erect timber trusses
  - c. Install roof venting framework
2. Frame flat roofs
  - a. Lay out a framing plan for a flat roof with an overhang
  - b. Lay out roof joists positions

- c. Lay out diagonal and single cheek cut joists
- d. Lay out sloped roof joists
- e. Construct a roof opening curb
- f. Install drainage framework

**NAME AND NUMBER:** AJ2500 - Cabinets and Shelving

**DESCRIPTION:**

This course in interior finish requires the use of tools and equipment, materials and supplies and suitable facilities. It involves interpreting specifications and blueprints; layout, construction and installation of cabinets and shelving; and clean up. It includes information on internal elevations, and construction and installation techniques.

**COURSE AIMS:**

1. To develop the skills and knowledge required for constructing and installing cabinets and shelving with respect to various codes and regulations
2. To practice safety in potentially harmful situations
3. To develop an appreciation for conservation and environmental issues
4. To identify, select, estimate and conserve building materials
5. To ensure energy efficient building construction

**PREREQUISITES:** AJ1110 AJ1150

**COURSE DURATION:** 105hrs

**EVALUATION:** Theory and Practical Applications Require a pass mark of 70%

**COURSE OBJECTIVES (KNOWLEDGE):**

1. Explain construction and installation techniques for cabinets and shelving
2. Describe types of cabinets and shelving
3. Describe the principles of kitchen layout

**MAJOR TASKS / SUBTASKS (SKILLS):**

1. Install shelving, bookcases, etc.
  - a. Install fireplace mantels
  - b. Build and install bookcases (built-in-place)
  - c. Install shelving as in clothes and linen closets
  - d. Build planters and room dividers
2. Construct and install cabinets, shelves and display cases
  - a. Select cabinet/display case construction methods and designs

- b. Identify fasteners, adhesives, materials and hardware
  - c. Lay out upper and lower cabinet frame work
  - d. Construct drawers and runs
  - e. Install cabinet framework
  - f. Construct doors and install hardware and accessories
  - g. Build countertop base and apply laminates
  - h. Install postformed counter tops
  - i. Install factory cabinets
  - j. Install closet and shelving systems.
  - k. Lay out and cut openings for other trades.
3. Install special purpose fixtures
- a. Knowledge of architectural fixtures.
  - b. Follow manufacturer's installation procedures
  - c. Install fixtures to masonry
  - d. Install fixtures to gypsum board
  - e. Install fixtures to solid concrete
  - f. Install prefabricated fireplace



**NAME AND NUMBER:** AJ2600 - Interior Finish Stairs

**DESCRIPTION:**

This course in stair construction requires the use of tools and equipment, materials and supplies, and suitable facilities. It involves interpreting specifications and blueprints; layout construction and installation of interior finish stairs; and clean up.. It includes information on construction techniques for common finish stairs.

**COURSE AIMS:**

1. To develop the skills and knowledge required for constructing interior finish stairs with respect to various codes and regulations
2. To practice safety in potentially harmful situations
3. To develop an appreciation for conservation and environmental issues
4. To identify, select, estimate and conserve building materials
5. To ensure energy efficient building construction

**PREREQUISITES:** AJ1600

**COURSE DURATION:** 60hrs

**EVALUATION:** Theory and Practical Applications Require a pass mark of 70%

**COURSE OBJECTIVES (KNOWLEDGE):**

1. Make calculation associated with geometric stair design geometry
2. Describe construction techniques for common finish stairs.

**MAJOR TASKS / SUBTASKS (SKILLS):**

1. Build common finish stairs
  - a. Identify and select various balustrade/railing designs
  - b. Identify and select balustrade materials
  - c. Lay out and cut newels, handrails, balusters, railings and skirt boards.
  - d. Build open type stairs against wall finished members including newel posts, handrails and nosings
  - e. Build quarter turn enclosed stairs using winder treads with cut out stringers at the turn
  - f. Prepare balustrade to specified finish

- g. Perform calculations for geometrical stairs

**NAME AND NUMBER:** AJ2400 - Posts and Beams

**DESCRIPTION:**

This course in posts and beams requires the use of tools and equipment, materials and supplies and suitable facilities. It involves interpreting specifications and blueprints; layout, construction and installation of beams and posts; and clean up. It includes information on types of post and beam construction and installation

**COURSE AIMS:**

1. To develop the skills and knowledge required for post and beam construction with respect to various codes and regulations
2. To practice safety in potentially harmful situations
3. To develop an appreciation for conservation and environmental issues
4. To identify, select, estimate and conserve building materials
5. To ensure energy efficient building construction

**PREREQUISITES:** AJ1220

**COURSE DURATION:** 45hrs

**EVALUATION:** Theory and Practical Applications Require a pass mark of 70%

**COURSE OBJECTIVES (KNOWLEDGE):**

1. Describe types of post and beam construction

**MAJOR TASKS / SUBTASKS (SKILLS):**

1. Build and erect post and beam and structural timber framework
  - a. Assemble frame work used in timber construction
  - b. Erect frame work used in timber construction
2. Build plankwall construction
  - a. Interpret various plankwall framing details
  - b. Frame a plankwall building from a set of drawings

**REQUIRED RELATED COURSES**

**COURSE NAME & NUMBER:** Workplace Correspondence CM2150

**DESCRIPTIVE TITLE:** Workplace Correspondence

**CALENDAR TITLE:**

**1.0 Type and Purpose** Communications 2150 gives students the opportunity to study the principles of effective writing. Applications include letters, memos, and short report writing.

**2.0 Major Topics** Review of Sentence and Paragraph Construction; Business Correspondence; Informal Report; Job Search Techniques.

**PREREQUISITES:** Nil

**CO-REQUISITES:** Nil

**COURSE DURATION** 45hrs

**SUGGESTED TEXT/  
LEARNING RESOURCES:**

**Textbooks:** Business English and Communications, Fourth Canadian Edition, Clark, Zimmer, et al., McGraw-Hill Ryerson, 1990

Student Projects and Activities for Business English and Communications,  
Fourth Canadian Edition, Clark, et al., McGraw-Hill, 1990

Effective Business Writing, Jennifer MacLennon

Simon and Shuster Handbook for Writers, Second Edition, Troyka  
Lynn Quitman, Prentice Hall

College English Communication, Third Canadian Edition, Stewart,  
Zimmer, et al., McGraw-Hill Ryerson Limited, 1989

Business and Administrative Communication, Second Edition,  
Kitty O. Locker. IRWIN, 1991

**References:** Pittman Office Handbook, Smith/Hay-Ellis

The Gregg Reference Manual, Fourth Canadian Edition,  
Sabin/O'Neill

McGraw Hill Handbook

**Other Resources:** Business Letter Business (Video), Video Arts

Guest Speakers

Sell Yourself (Video)

**COURSE AIMS:**

1. To help students understand the importance of well-developed writing skills in business and in career development.
2. To help students understand the purpose of the various types of business correspondence.
3. To examine the principles of effective business writing.
4. To examine the standard formats for letters and memos.
5. To provide opportunities for students to practice writing effective letters and memos.
6. To examine the fundamentals of informal reports and the report writing procedure.
7. To provide an opportunity for students to produce and informal report.

**MAJOR TOPICS/TASKS:**

- 1.0 Review of Sentence and Paragraph Construction
- 2.0 Business Correspondence
- 3.0 Informal Report/Present Orally

**COURSE OUTLINE:**

- 1.0 Review of Sentence and Paragraph Construction
  - 1.1 Examining and applying principles of sentence construction
  - 1.2 Examining and applying principles of paragraph construction
- 2.0 Business Correspondence
  - 2.1 Examining the value of well-developed business writing skills

- 2.2 Examining principles of effective business writing
- 2.3 Examining business letters and memos
- 3.0 Informal Report
- 3.1 Examining the fundamentals of informal business reports
- 3.2 Applying informal report writing skills

**LEARNING OBJECTIVES:**

- 1.0 Review of Sentences and Paragraph Construction
  - 1.1.1 Define a sentence and review the four types.
  - 1.1.2 Identify the essential parts of a sentence, particularly subject and predicate, direct and indirect object.
  - 1.1.3 Differentiate among phrases, clauses, and sentences.
  - 1.1.4 Explore the major concepts related to subject-verb agreement.
  - 1.1.5 Apply rules and principles for writing clear, concise, complete sentences which adhere to the conventions of grammar, punctuation, and mechanics.
- 1.2 Examine and Apply Principles of paragraph Construction
  - 1.2.1 Discuss the basic purposes for writing.
  - 1.2.2 Define a paragraph and describe the major characteristics of an effective paragraph.
  - 1.2.3 Write well-developed, coherent, unified paragraphs which illustrate the following: A variety of sentence arrangements; conciseness and clarity; and adherence to correct and appropriate sentence structure, grammar, punctuation, and mechanics.
- 2.0 Business Correspondence
  - 2.1 Examine the Value of Business Writing Skills
    - 2.1.1 Discuss the importance of effective writing skills in business
    - 2.1.2 Discuss the value of well-developed writing skills to career success
  - 2.2 Examine Principles of Effective Business Writing
    - 2.2.1 Discuss the rationale and techniques for fostering goodwill in business communication, regardless of the circumstances
    - 2.2.2 Review the importance of revising and proofreading writing

- 2.3 Examine Business Letters and Memos
  - 2.3.1 Differentiate between letter and memo applications in the workplace
  - 2.3.2 Identify the parts of a business letter and memo
  - 2.3.3 Explore the standard formats for business letters and memos
  - 2.3.4 Examine guidelines for writing an acceptable letter and memo which convey: acknowledgment, routine request, routine response, complaint, refusal, and persuasive request, for three of the six types listed
  - 2.3.5 Examine samples of well-written and poorly written letters and memos
  
- 3.0 Informal Report
  - 3.1 Examine the Fundamentals of Informal Business Reports
    - 3.1.1 Identify the purpose of the informal report
    - 3.1.2 Identify the parts and formats of an informal report
    - 3.1.3 Identify methods of information gathering
  
  - 3.2 Apply Informal Report Writing Skills and Oral Reporting Skills
    - 3.2.1 Gather pertinent information
    - 3.2.2 Organize information into an appropriate outline
    - 3.2.3 Draft a five minute informal report
    - 3.2.4 Edit, proofread, and revise the draft to create an effective informal report and present orally using visual aids.

**RECOMMENDED EVALUATION:**

Required Pass Mark      70%

**DEVELOPMENT HISTORY:**

Date Developed:  
Date Revised: 1999 05 03

**NAME AND NUMBER:** Customer Service MR1210

**DESCRIPTIVE TITLE:** Customer Service

**SUMMARY DESCRIPTION:**

This course focuses on the role of providing quality customer service. It is important to have a positive attitude and the necessary skills to effectively listen and interpret customer concerns about a product, resolve customer problems, and determine customer wants and needs. Students will be able to use the skills and knowledge gained in this course to effectively provide a consistently high level of service to the customer.

**PREREQUISITES:** None

**CO-REQUISITES:** None

**SUGGESTED DURATION:** 30 hrs

**EVALUATION:** Theory and Practical Applications Require a Pass Mark of 70%.

**COURSE AIMS:**

1. To know and understand quality customer service
2. To know why quality service is important
3. To know and understand the relationship between “service” and “sales”
4. To understand the importance of and to demonstrate a positive attitude
5. To recognize and demonstrate handling of customer complaints

**COURSE OBJECTIVES (KNOWLEDGE):**

1. Providing Quality Service
  - Define quality service
  - List the types of quality service



- Define Service vs. Sales or Selling
  - Explain why quality service is important
  - Identify the various types of customers
  - Define customer loyalty
2. Determining Customers Wants and Needs
- List four levels of customer needs
  - Identify important customer wants and needs
  - Identify ways to ensure repeat business
3. Demonstrating a Positive Attitude
- List the characteristics of a positive attitude
  - Explain why it is important to have a positive attitude
  - List ways that a positive attitude can improve a customer's satisfaction
  - Define perception
  - Explain how perception can alter us and customers
  - Understand how to deal with perception
4. Effectively Communicating with customers
- Describe the main elements in the communication process
  - Identify some barriers to effective communication
  - Define body language
  - Explain how body language would affect customers
  - Determine why body language is important
  - Define active listening and state why it is important
  - Describe the four components of active listening
  - Contrast good and bad listeners
  - List and discuss the steps of the listening process
5. Effectively using Questioning Techniques
- List questioning techniques
  - Write two example of an open question
  - Perform a questioning and listening role play
6. Using the Telephone Effectively
- List the qualities of a professional telephone voice
  - Explain why telephone skills are important
  - Demonstrate effective telephone skills
7. Asserting Oneself: Handling Complaints and Resolving Conflict
- Define assertiveness
  - Define communication behaviors
  - Relate assertions to effective communication

- Practice being assertive
  - Understand the process of assertive guidelines for action
  - Practice giving an assertive greeting
  - Acknowledge multiple customers
8. Dealing with Difficult Customers
- Describe how you would deal with anger
  - Complete a guide to controlling feelings
  - Determine how you would feel dealing with an upset customer
  - Suggest some techniques that might control your own feelings
  - Understand leadership styles and the nature of organizations
  - List ways to dealing with conflict / customer criticism
  - Be aware of certain guidelines when confronting customers
  - List ways of preventing unnecessary conflict with customers
  - Review current skills and knowledge of customer service
  - Develop a customer satisfaction improvement plan

**NAME AND NUMBER:** QA/QC SP2330

**DESCRIPTIVE TITLE:** Quality Assurance / Quality Control

**DESCRIPTION:**

This general studies course requires the use of basic tools and equipment and materials and supplies. It requires controlling drawings and specifications and/or calibrating measuring devices in applicable occupations. It involves interpreting standards, controlling the acceptance of raw materials, controlling quality variables and documenting the process. It includes information on quality concepts, codes and standards, documentation, communications, human resources, company structure and policy, teamwork and responsibilities.

**PREREQUISITES:** None

**CO-REQUISITES:** None

**SUGGESTED DURATION:** 30 Hrs

**COURSE AIMS:**

1. To develop the skills and knowledge required to apply quality assurance/quality control procedures
2. To develop an awareness of quality management principles and processes

**COURSE OBJECTIVES (KNOWLEDGE):**

1. Describe the reasons for quality assurance and quality plans.
2. Explain the relationship between quality assurance and quality control.
3. Describe quality control procedures as applied to the production and checking of engineering drawings in applicable occupations.
4. Describe quality control procedures as applied to the acceptance and checking of raw materials.
5. Explain the role of communications in quality management.

6. Explain why it is important for all employees to understand the structure of the company and its production processes.
7. Explain how human resource effectiveness is maximized in a quality managed organization.
8. Explain the role of company policy in quality management.
9. Explain the purpose of codes and standards.
10. Explain the concepts of quality
  - a. cost of quality
  - b. measurement of quality
  - c. quality control and quality assurance
  - d. elements of quality
  - e. elements of the quality audit
  - f. quality standards
  - g. role expectations and responsibilities
11. Explain the structure of quality assurance and quality control
  - a. Define quality assurance, quality control and documentation terminology
  - b. Describe organizational charts
  - c. List the elements of a quality assurance system
  - d. Explain the purpose of the quality assurance manual
  - e. Describe quality assurance procedures
  - f. Explain the key functions and responsibilities of personnel
12. Complete quality assurance/quality control documentation
  - a. Describe methods of recording reports in industry
  - b. Describe procedures of traceability (manual and computer-based recording)
  - c. Identify needs for quality control procedures

**MAJOR TASKS / SUBTASKS (SKILLS):**

1. Apply quality control to projects
  - a. Follow QA/QC procedures for drawings, plans and specifications in applicable occupations.
  - b. Calibrate measuring instruments and devices in applicable occupations.
  - c. Interpret required standards
  - d. Follow QA/QC procedures for accepting raw materials
  - e. Carry out the project
  - f. Control the quality elements (variables)
  - g. Complete QA/QC reports

**EVALUATION:**

Pass Mark Required 70%

**DEVELOPMENT HISTORY:**

Date Developed: February 1994

Date Revised: April, 1999

**NAME & NUMBER:** Introduction to Computers MC1050

**DESCRIPTIVE TITLE:** Introduction to Computers

**CALENDAR ENTRY:**

**Type and Purpose** This course is designed to give the student an introduction to computer systems. Particular emphasis is given to word processing, spreadsheet, e-mail and the Internet.

**Major Topics** Microcomputer System Hardware and Software Components; Word Processing; Electronic Spreadsheets; Electronic Mail and the Internet.

**PRE-REQUISITES:** Nil

**CO-REQUISITES:** Nil

**SUGGESTED DURATION:** 30 hours

**SUGGESTED TEXT/  
LEARNING RESOURCES:**

**Textbook(s):**

**References:**

**Other Resources:**

**COURSE AIMS:**

1. To provide students with a introduction to computer systems and their operation.
2. To introduce students to popular software packages, their applications and future trends in computer applications.

**MAJOR TOPICS:**

1. Microcomputer System Hardware and Software Components
2. Word Processing
3. Spreadsheet
4. E-Mail and the Internet

**COURSE OUTLINE:**

- 1.0 Microcomputer System Hardware and Software Components
  - 1.1 Microcomputer Hardware
    - 1.1.1 System Components
    - 1.1.2 Function of each Component
  - 1.2 Microcomputer Software
    - 1.2.1 Software Definition and Types
    - 1.2.2 System Software (Windows 95)
    - 1.2.3 File Management Commands (Windows 95)
2. Word Processing
  - 2.1 Keyboarding Techniques
  - 2.2 Word Processing
    - 2.2.1 Understanding Word Processing
    - 2.2.2 Create a Document
    - 2.2.3 Save, Open and Edit a Document
    - 2.2.4 Edit a Document: Cut and Paste
    - 2.2.5 Understand Hidden codes.
    - 2.2.6 The Select Feature (Block)
    - 2.2.7 Change Layout Format
    - 2.2.8 Change Text Attributes
    - 2.2.9 Use Auxiliary Tools
    - 2.2.10 Select the Print Feature (number of copies and current document)
3. Electronic Spreadsheet
  - 3.1 Spreadsheet Basics
  - 3.2 Operate Menus
  - 3.3 Create a Worksheet
  - 3.4 Use Ranges

- 3.5 Print a Worksheet
- 3.6 Edit a worksheet
  
- 4. Electronic Mail and the Internet
  - 4.1 Electronic Mail
  - 4.2 The Internet

**LEARNING OBJECTIVES:**

- 1. Microcomputer System Hardware and Software Components
  - 1.1 Microcomputer Hardware
    - 1.1.1 System Components
      - 1.1.1.1 Identify major components of a computer system.
    - 1.1.2 Function of each Component
      - 1.1.2.1 Describe the function of the microprocessor.
      - 1.1.2.2 Describe and give examples of I/O DEVICES.
      - 1.1.2.3 Describe primary storage (RAM, ROM, Cache).
      - 1.1.2.4 Define bit, byte, code and the prefixes k.m. and g.
      - 1.1.2.5 Describe secondary storage (diskettes and hard disks, CD ROMS, Zip Drives etc).
      - 1.1.2.6 Describe how to care for a computer and its accessories.
  - 1.2 Microcomputer Software
    - 1.2.1 Software Definition and Types
      - 1.2.1.1 Define software.
      - 1.2.1.2 Describe, operational and application software used in this course.
      - 1.2.1.3 Define file and give the rules for filenames and file extensions..
    - 1.2.2 System Software (Windows 95)
      - 1.2.2.1 Getting Started with Windows
      - 1.2.2.2 Start and quit a Program
      - 1.2.2.3 Get Help
      - 1.2.2.4 Locate a specific file using the **find** function of



Win95

- 1.2.2.5 Changing system settings: wall paper, screen saver, screen resolution, background.
- 1.2.2.6 Starting a program by using the Run Command
- 1.2.2.7 Shutting down your computer

1.2.3 File Management Commands (Windows 95)

- 1.2.3.1 View directory structure and folder content
- 1.2.3.2 Organizing files and folders
- 1.2.3.3 Copy, delete, and move files and folders
- 1.2.3.4 Create folders
- 1.2.3.5 Maximize and minimize a window
- 1.2.3.6 Print directory/folder content
- 1.2.3.7 Describe the Windows 95 taskbar

2. Word Processing

2.1 Keyboarding Techniques

- 2.1.1 Identify and locate alphabetic and numeric keys
- 2.1.2 Identify and locate function keys: special keys, home keys, page up key, page down key, numeric key pad, shift keys, punctuation keys, tab key

2.2 Word Processing

2.2.1 Understanding word processing

- 2.2.1.1 The Windows Component
- 2.2.1.2 The Menu Bar
- 2.2.1.3 Menu Indicators
- 2.2.1.4 The Document Window
- 2.2.1.5 The Status Bar
- 2.2.1.6 The Help Feature
- 2.2.1.7 Insertion Point Movements

2.2.2 Create a document

- 2.2.2.1 Change the Display
- 2.2.2.2 The Enter Key
- 2.2.2.3 Enter Text

2.2.3 Save, Open and Exit a document.

- 2.2.3.1 Save a document
- 2.2.3.2 Close a document.
- 2.2.3.3 Start a new document Window
- 2.2.3.4 Open a document
- 2.2.3.5 Exit Word Processor

2.2.4 Edit a Document

- 2.2.4.1 Add New Text
- 2.2.4.2 Delete text
- 2.2.4.3 Basic Format Enhancement (split and join paragraphs, insert text)

2.2.5 Understand Hidden Codes

- 2.2.5.1 Display Hidden Codes
- 2.2.5.2 Delete Text Enhancements

2.2.6 The Select Feature

- 2.2.6.1 Identify a Selection
- 2.2.6.2 Move a Selection
- 2.2.6.3 Copy a Selection
- 2.2.6.4 Delete a Selection
- 2.2.6.5 Select Enhancements
- 2.2.6.6 Save a Selection
- 2.2.6.7 Retrieve a Selection

2.2.7 Change Layout Format

- 2.2.7.1 Change layout format: (margins, spacing, alignment, paragraph indent, tabs, line spacing, page numbering)

2.2.8 Change Text Attributes

- 2.2.8.1 Change text attributes: (bold, underline, font, etc.)

2.2.9 Use Auxiliary Tools

- 2.2.9.1 Spell Check

2.2.10 Select the Print Feature

2.2.10.1 Select the Print Feature: (i.e; number of copies and current document)

2.2.10.2 Identify various options in print screen dialogue box

3. Electronic Spreadsheet

3.1 Spreadsheet Basics

3.1.1 The Worksheet Window

3.2 Operates Menus

3.2.1 Use a Menu Bar

3.2.2 Use a Control Menu

3.2.3 Use a Shortcut Menu

3.2.4 Save, Retrieve form Menus

3.3 Create a Worksheet

3.3.1 Enter Constant Values and Formulas

3.3.2 Use the Recalculation Feature

3.3.3 Use Cell References (relative and absolute references)

3.4 Use Ranges

3.4.1 Type a Range for a Function

3.4.2 Point to a Range for a Function

3.4.3 Select a Range for Toolbar and Menu Commands

3.5 Print a Worksheet

3.5.1 Print to the Screen

3.5.2 Print to the Printer

3.5.3 Print a Selected Range

3.6 Edit a Worksheet

3.6.1 Replace Cell Contents

3.6.2 Insert and Delete Rows and Columns

3.6.3 Change Cell Formats

3.6.4 Change Cell Alignments

3.6.5 Change Column Width

3.6.6 Copy and Move Cells

4. Electronic Mail and the Internet

4.1 Electronic Mail

- 4.1.1 Compose and send an e-mail message
- 4.1.2 Retrieve an e-mail attachments
- 4.1.3 Send an e-mail message with attachments
- 4.1.4 Retrieve and save e-mail attachments
- 4.1.3 Print an e-mail message
- 4.1.4 Delete an e-mail message

4.2 The Internet

- 4.2.1 Overview of the World Wide Web
- 4.2.2 Accessing Web sites
- 4.2.3 Internet Web Browsers
- 4.2.4 Internet Search Engines
- 4.2.5 Searching Techniques

**STUDENT EVALUATION:**

Required Pass Mark            70%

**DEVELOPMENT HISTORY:**

**Date Designed            1998**  
**Date Revised             1999**

**NAME AND NUMBER:** Workplace Skills SD 1700

**DESCRIPTIVE TITLE:** Workplace Skills

**DESCRIPTION:**

This course involves participating in meetings, doing safety inspections, completing employment insurance forms, writing letters of employment insurance appeal, and filing a human rights complaint. Includes information on formal meetings, unions, worker's compensation, employment insurance regulations, worker's rights and human rights.

**PREREQUISITES:** None

**CO-REQUISITES:** None

**SUGGESTED DURATION:** 30 Hrs

**COURSE AIMS:**

1. Participate in meetings (conduct meetings).
2. Be aware of union procedures.
3. Be aware of workers' compensation regulations.
4. Be aware of occupational health and safety regulations.
5. Be aware of employment insurance regulations
6. Be aware of workers' rights.
7. Be aware of human rights

**COURSE OBJECTIVES (KNOWLEDGE):**

1. Meetings
  - a. Explain preparation requirements prior to conducting a meeting
  - b. Explain the procedures for conducting a meeting.
  - c. Explain participation in meetings.

- d. Explain the purpose of motions.
  - e. Explain the procedure to delay discussion of motions.
  - f. Explain how to amend and vote upon a motion.
2. Unions
    - a. Why do unions exist?
    - b. Give a concise description of the history of Canadian labour.
    - c. How do unions work?
    - d. Explain labour's structure.
    - e. Describe labour's social objectives.
    - f. Describe the relationship between Canadian labour and the workers.
    - g. Describe the involvement of women in unions.
3. Worker's Compensation
    - a. Describe the aims, objectives, benefits and regulations of the Workers Compensation Board.
    - b. Explain the internal review process.
4. Occupational Health and Safety
    - a. Describe the rules and regulations directly related to your occupation.
5. Employment Insurance Regulations
    - a. Explain employment insurance regulations
    - b. Describe how to apply for employment insurance.
    - c. Explain the appeal process.
6. Worker's Rights
    - a. Define labour standards.
    - b. Explain the purpose of the Labour Standards Act.
    - c. List regulations pertaining to:
      - i. Hours of work.
      - ii. Minimum wage.
      - iii. Employment of children.
      - iv. Vacation pay
7. Human Rights
    - a. Describe what information cannot be included on an application.
    - b. Describe what information cannot be included in an interview
    - c. Why is there a Human Rights Code?
    - d. Define sexual harassment.

**MAJOR TASKS / SUBTASKS (SKILLS):**

1. Participate in meetings.
  - a. Follow the form of getting a motion on the floor
  - b. Discuss a motion
  - c. Amend a motion
  - d. Vote on a motion.
2. Complete a safety inspection of your shop.
3. Complete an employment insurance application form.
4. Write a letter of appeal.
5. Analyze a documented case of a human rights complaint with special emphasis on the application form, time-frame, documentation needed, and legal advice available.

**EVALUATION:**

Required Pass Mark            70%

**DEVELOPMENT HISTORY:**

Date Developed:

Date Revised:     April, 1999

**NAME AND NUMBER:** Job Search Techniques SD 1710

**DESCRIPTIVE TITLE:** Job Search Techniques

**PREREQUISITES:** None

**CO-REQUISITES:** None

**SUGGESTED DURATION:** 15 hrs.

**EVALUATION:** Theory and Practical Applications Require a Pass Mark of 70%.

**COURSE OBJECTIVES (KNOWLEDGE):**

1. Examine and Demonstrate Elements of Effective Job Search Techniques
  - Identify and examine employment trends and opportunities
  - Identify sources that can lead to employment
  - Discuss the importance of fitting qualifications to job requirements
  - Discuss and demonstrate consideration in completing job application forms
  - Establish the aim/purpose of a resume
  - Explore characteristics of effective resumes, types of resumes, and principles of resume format
  - Explore characteristics of and write an effective cover letter
  - Explore, and participate in a role play of a typical job interview with commonly asked questions and demonstrate proper conduct
  - Explore other employment related correspondence
  - Explore the job market to identify employability skills expected by employer
  - Conduct a self-analysis and compare with general employer expectations

**DEVELOPMENT HISTORY:**

Date Developed:

Date Revised: 1999 05 03



**NAME AND NUMBER:** Entrepreneurial Awareness SD 1720

**DESCRIPTIVE TITLE:** Entrepreneurial Awareness

**PREREQUISITES:** None

**CO-REQUISITES:** None

**SUGGESTED DURATION:** 15 hrs

**EVALUATION:** Theory and Practical Applications Require a Pass Mark of 70%.

**COURSE OBJECTIVES (KNOWLEDGE):**

1. Explore Self-Employment: An Alternative to Employment
  - Identify the advantages and disadvantages of self-employment vs. regular employment
  - Differentiate between an entrepreneur and a small business owner
  - Evaluate present ideas about being in business
2. Explore the Characteristic of Entrepreneurs
  - Identify characteristics common to entrepreneurs
  - Relate their own personal characteristics with those of entrepreneurs.
  - Evaluate their present ideas about business people
3. Identifying Business Opportunities
  - Distinguish between an opportunity and an idea.
  - List existing traditional and innovative business ventures in the region.
  - Explain the general parameters between which business ventures should fit.
  - Summarize the role of such agencies Regional Economic Development Boards, Business Development Corporations, etc.
  - Identify potential business opportunities within the region.
4. Demystifying the Entrepreneurial Process.
  - Explain the entrepreneurial process
  - Describe the purpose of a business plan
  - Identify the main ingredients of a business plan

## *Carpenter Occupation*

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- Summarize the role of such agencies as BDC's, ACOA, Women's Enterprise Bureau etc.
- List other agencies where assistance - financial and otherwise - is available to those interested in starting a business venture.

## REQUIRED WORK EXPERIENCES

National Red Seal Certification requires that all Apprentices obtain appropriate industry based work experiences. The required work experiences identified in this section are written in the broadest terms so as to ensure the apprentices receive experiences in each of the required areas and to ensure that employers have a degree of flexibility in applying the terms and conditions implicit in a Contract of Apprenticeship. What is important is that both the apprentice and the employer understand the obligations laid out in this plan of training which is designed to ensure that at the completion of both the technical training and the required hours of work experience the apprentice has both the knowledge and the skills necessary to successfully complete the Red Seal Examination.

**REQUIRED WORK EXPERIENCES:**

- Interpret specifications and blueprints which includes reading basic drawings and sketching.
- Prepare site for footing, formwork, layout and erect batterboards, install footing forms.
- Install Foundation Wall Forms which includes constructing forms, installing accessories, installing access for pouring, stripping and foundation drainage installation.
- Construct floor and wall framing which includes layout, framing and installing, using various construction techniques.
- Install exterior finish which includes layout and installation of various types of frames, trims and sidings.
- Construct roof framing which involves layout and framing of different roof designs using various construction techniques.
- Install interior walls, ceilings and trim using various construction techniques.
- Construct various types of stairs which includes calculating, design, layout and installation.
- Build cabinets and shelving which includes layout, construction and installation, using different construction techniques.